10.798.201

Attorney Docket No. 85170-4599 PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of: Downie et al.
For: Improved Downhole Tool

the specification of which: (check and complete (a), (b), or (c))

(a) ☐ is attached hereto.
(b) ☒ was filed and amended on 7/14/03 as Application No. 10/619,402 and then continued as Continuation Application No. 10/798,201 filed on 3/10/04.
(c) ☒ was described and claimed in International Application No. PCT/GB02/00178, filed on 1/15/02.

STATEMENT OF FACTS IN SUPPORT OF FILING ON BEHALF OF NONSIGNING INVENTOR (37 C.F.R. § 1.47)

NOTE: This statement as to the pertinent facts concerning the refusal of the nonsigning inventor to join in the application or where the omitted inventor cannot be found or reached must accompany the declaration signed on behalf of the omitted inventor by a joint inventor or by a legal representative who shows a proprietary interest. Where the entity with a proprietary interest executes the declaration on behalf of the omitted inventor there must also be a showing that such action is necessary to preserve the rights of the parties or to prevent irreparable damage. 37 C.F.R. §§ 1.47(a) and (b).

This statement is made as to the exact facts that are relied upon to establish the diligent effort made to secure the execution of the declaration by the nonsigning inventor for the above-identified patent application before deposit thereof in the Patent and Trademark Office.

(check next item, if applicable)

☒ Because signing on behalf of the nonsigning inventor is by a person or entity showing a sufficient proprietary interest, this statement also recites facts as to why this action was necessary to preserve the rights of the parties or to prevent irreparable damage.

This statement is being made by an available person having first-hand knowledge of the facts recited therein.

NOTE: The statement "must be signed, where at all possible, by a person having first-hand knowledge of the facts recited therein." M.P.E.P. § 409.03(d), 8th ed. If different persons have first-hand knowledge of different facts, then a declaration from each such person as to those facts he or she knows should be submitted separately.

NOTE: Copies of documentary evidence, such as certified mail return receipt, cover letter of instructions, telegrams, etc., that support a finding that the nonsigning inventor could not be reached should be made part of the affidavit or declaration. It is important that the affidavit or declaration contain statements of fact as opposed to conclusions. M.P.E.P. § 409.03(d), 8th ed.

Name INEZ SCHIFANI

Name

C/O SMITH INTERNATIONAL, INC., 16740 HARDY STREET, HOUSTON, TEXAS 77032, USA.

Address

Address

LAST KNOWN ADDRESS OF THE NONSIGNING INVENTOR

NOTE: The last known address of the nonsigning inventor must be stated so that the PTO can forward the notice of filing of the application to the nonsigning inventor at said address. 37 C.F.R. § 1.47.

EDWARD DOCHERTY SCOTT
Full name of nonsigning inventor

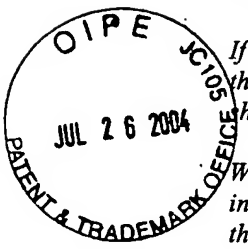
MAYBURN, 81 STATION ROAD, CARDENDEN, FIFE, KY5 0BW, UNITED KINGDOM
Last known address of nonsigning inventor

Note: Ordinarily, the last known address will be the last known residence of the nonsigning inventor, but other addresses at which the nonsigning inventor may be reached should also be given in the space below. M.P.E.P. § 409.03(e), 8th ed.

DETAILS OF REFUSAL OF NONSIGNING INVENTOR TO SIGN APPLICATION PAPERS

NOTE: Complete either these facts or the facts as to DETAILS OF EFFORTS TO REACH NONSIGNING INVENTOR.

NOTE: The circumstances of refusal must be specified by the person to whom the refusal was made and, before a refusal can be alleged, it must be demonstrated that a bona fide attempt was made to present a copy of the application papers (specification, including claims, drawings and declaration) to the nonsigning inventor for signature. A copy of the application papers should be sent to the last known address of the nonsigning inventor, or, if the nonsigning inventor is represented by counsel, to the address of the nonsigning inventor's attorney. The time and place of an oral refusal should be stated, or a copy of the written refusal should be attached.



If it is the conduct as a whole of the nonsigning inventor that is the refusal, then all the facts upon which this conclusion is based should be stated and a copy of any documentary evidence supporting these facts should be attached.

Where there is an express oral refusal, that fact along with the time and place of the refusal must be stated in the affidavit or declaration. When there is an express written refusal, a copy of the document evidencing that refusal must be made part of the affidavit of declaration.

Whenever the nonsigning inventor gives a reason for refusing to sign the application papers, that reason should be stated. M.P.E.P. § 409.03(d), 8th ed.

(use supplemental pages, if necessary)

International patent application No. PCT/GB02/00178 was filed on January 15th 2002 in the name of Neyrfor-Weir Limited, designating Andrew MacPherson Downie, Roy Powell and Edward Docherty Scott as the Applicants for the purposes of the United States of America only. The International application was based upon and claimed priority from UK patent application No. 0101014.9, filed January 15th 2001. The Applicant Edward Docherty Scott was an employee of Neyrfor-Weir Limited, employed as a Design Engineer, and all rights in any inventions developed by Mr. Scott were owned by Neyrfor-Weir Limited. Mr. Scott left the employment of Neyrfor-Weir Limited at the end of June 2001, prior to filing of the International application. However, on March 26th 2002, Mr. Scott completed a Power of Attorney in favour of Cruikshank & Fairweather (the European Patent Attorneys representing Neyrfor-Weir Limited) in respect of the International application.

The International application was assigned by Neyrfor-Weir Limited to Smith International, Inc in an Assignment dated 31st July 2002.

Following sale of the Neyrfor-Weir Limited business to Smith International, Inc, Neyrfor-Weir Limited changed name to Sii Neyrfor (a business unit of Smith International (North Sea) Limited, owned by Smith International, Inc).

The US national phase of PCT/GB02/00178 was entered on July 14th 2003 and subsequently afforded the serial number 10/619,402. This application was drafted by Cruikshank & Fairweather who, as noted above, were the European Patent Attorneys representing Neyrfor-Weir Limited, and who have subsequently represented Sii Neyrfor.

Around July 2003, I corresponded with Mr. Scott via email, advising that we would be contacting him asking him to complete a Declaration/Power of Attorney document in connection with US 10/619,402.

On August 2nd, 2003 Mr. Scott sent an email to me requesting that we call him to discuss the issue of completion of the Declaration. A copy of this email is attached.

On August 15th 2003, I attempted to contact Mr. Scott by telephone, but was unable to contact him. I then sent an email to Mr. Scott requesting that he contact Mr. Sean Henkel, who I assist at Smith International, Inc. A copy of this email is attached.

On August 18th 2003, Mr. Scott sent an email to me advising that he would contact Mr. Henkel for discussion. A copy of this email is attached. Mr. Scott contacted Mr. Henkel but verbally refused to sign the Declaration.

On October 10th, 2003, the USPTO issued a Notice to File Missing Parts in respect of the Oath/Declaration within an unextended period of two months from the date of the Notice.

On November 11th, 2003, Cruikshank & Fairweather corresponded with Mr. Henkel advising him of a requirement to file the Declaration, and noting Mr. Henkel's previous comments to them that it was unlikely Mr. Scott would complete the document.

Also on November 11th, 2003, Cruikshank & Fairweather corresponded with Mr. Scott enclosing a copy of the Declaration and advising him of a requirement for him to complete the document. A copy of this correspondence is attached.

On November 12th 2003, having not heard further from Mr. Scott since his August 18th email, I contacted Mr. Scott to enquire as to whether Mr. Henkel or Cruikshank & Fairweather had contacted him. A copy of this email is attached.

On November 13th 2003, Mr. Scott sent an email to me indicating that he had never been employed by Sii-Neyrfor or Smith International, Inc and indicated that he was unwilling to sign the document on this basis. A copy of this email is attached. However, Mr. Scott was employed by Neyrfor-Weir Limited and the Declaration requiring completion is in relation to an invention developed during his period as an employee of Neyrfor-Weir Limited. Furthermore, Mr. Scott apparently indicated that he would sign the Declaration on receipt of a payment. Mr. Scott also referred to the fact that the patent application listed Mr. Roy Powell as an inventor. Cruikshank & Fairweather were advised by Mr. Downie that the inventors were himself (Andrew MacPherson Downie), Roy Powell and Edward Docherty Scott prior to filing of the initial UK application 0101014.9, which occurred prior to Mr. Scott's departure from Neyrfor-Weir Limited. Mr. Downie was an employee of Neyrfor-Weir Limited and subsequently of Sii Neyrfor, and the point of contact for Cruikshank & Fairweather at the time of filing the UK and International applications. As noted above, the International application was based upon the UK application.

On January 28th, 2004, Cruikshank & Fairweather further corresponded with Mr. Scott enclosing a fresh copy of the Declaration and reminding him of a requirement for him to complete the document. This was copied to Mr. Henkel and a copy of the correspondence is attached.

On March 10th, 2004, Cruikshank & Fairweather arranged for a continuation application of US 10/619,402 to be filed. This was subsequently given the serial No. 10/798,201.

On May 26th, 2004, the USPTO issued a Notice to File Missing Parts in respect of the Oath/Declaration for US 10/798,201 within an unextended period of two months from the date of the Notice.

On June 29th 2004, Cruikshank & Fairweather corresponded with Mr. Scott advising him of filing of the continuation application 10/798,201, enclosing a copy of the application as filed comprising the specification, including claims, drawings and declaration, and further advising and explaining the requirement for him to complete a Declaration. This was copied to Mr. Henkel and a copy of the correspondence is attached. Mr. Scott continues to refuse to complete the required Declaration.

PROOF OF NEED TO PREVENT IRREPARABLE DAMAGE OR PRESERVE THE RIGHTS OF THE PARTIES

NOTE: This proof must be presented where the declaration is signed by a person with sufficient proprietary interest for the nonsigning inventor (37 C.F.R. § 1.47(b)), but is not a requirement when the person signing for the nonsigning inventor is a joint inventor. (37 C.F.R. § 1.47(a))

If a statutory bar is involved, the act or publication which is believed to constitute the bar should be identified. If a claim for priority is involved, the prior application or applications should be identified.

A diligent effort to prepare the application and obtain the inventor's signature thereon must be made, even if the application is being filed to avoid a bar or to claim priority.

Irreparable damage may be established by showing that a filing date is necessary to (1) avoid a statutory bar or (2) make a claim for priority, which should identify the prior application(s) involved.

M.P.E.P. § 409.03(g), 8th ed.

(if this proof is not needed and not being presented, then draw a line through this page of the form)

(use supplemental pages, if necessary)

A filing date is necessary to preserve the rights of the party and to prevent irreparable damage.

A Notice to File Missing Parts under 35 U.S.C. § 371 was issued requiring filing of an oath or declaration of inventors in compliance with 37 C.F.R. § 1.497(a) and (b) which must be submitted within an extended period of five (5) months from the date of the date of the Notice to File Missing Parts. Smith International, Inc. and the other 2 inventors will suffer irreparable damage caused by eventual loss of priority date due to failure to file within the prescribed statutory time period.

This invention has been assigned to Neyrfor-Weir Limited, by all of the inventors except Mr. Scott. Thus, Smith International, Inc., the successors in title to Neyrfor-Weir Limited, by and through the undersigned agent, submits that Smith International, Inc, has sufficient proprietary interest in the subject matter to justify the filing of the application and, therefore, submits to file the declaration for the application as required by the Notice to File Missing Parts.

_____ _____

Date

signature of person making statement

Express Mail No. **EV 346 811 391 US**

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of: Andrew DOWNIE et al.

Application No.: 10/798,201

Filing Date: March 10, 2004

For: DOWNHOLE TOOL

Confirmation No.: 6184

Group Art Unit: 3672

Attorney Docket No.: 85170-4599

PETITION TO FILE APPLICATION ON BEHALF OF NONSIGNING INVENTOR UNDER 37 C.F.R. § 1.47(a)

Mail Stop Missing Parts
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

This petition is being filed to submit a declaration for the subject application that has been executed and signed by two of the three inventors of this application, Andrew M. DOWNIE and Roy POWELL.

The third inventor of this application, Edward D. SCOTT, has been presented with a copy of the application papers and the declaration, but has refused to sign the declaration except for a monetary payment, as detailed in the Statements of Facts and documentary evidence submitted herewith in support of the petition.

The Statements of Facts, which set forth the circumstances of presentation of the application papers to and of refusal to sign by the nonsigning inventor, are prepared by David Moreland, Sean Henkel and Inez Schifani, who presented the nonsigning inventor with the application papers and/or to whom the refusal was made. A statement showing the need to file the application on behalf of the nonsigning inventor to preserve the rights of the parties or to prevent irreparable damage is also enclosed.

Also submitted herewith in accordance with 37 C.F.R. § 1.47(a) are the last known address of the nonsigning inventor and the fee of $130 required under 37 C.F.R. § 1.17(h). Please charge the required fees to Winston & Strawn LLP Deposit Account No. 50-1814.

07/29/2004 HLE333 00000048 501814 10798201
02 FC:1460 130.00 DA

Respectfully submitted,

7/26/04
Date

Allan A. Fanucci, Reg. No. 30,256

WINSTON & STRAWN LLP
Customer No. 28765
(212) 294-3311

NY:881331.1

Attorney Docket No. 85170-4599 PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of: Downie et al.
For: Improved Downhole Tool

the specification of which: (check and complete (a), (b), or (c))

(a) ☐ is attached hereto.
(b) ☒ was filed and amended on 7/14/03 as Application No. 10/619,402 and then continued as Continuation Application No. 10/798,201 filed on 3/10/04.
(c) ☒ was described and claimed in International Application No. PCT/GB02/00178, filed on 1/15/02.

STATEMENT OF FACTS IN SUPPORT OF FILING ON BEHALF OF NONSIGNING INVENTOR (37 C.F.R. § 1.47)

NOTE: This statement as to the pertinent facts concerning the refusal of the nonsigning inventor to join in the application or where the omitted inventor cannot be found or reached must accompany the declaration signed on behalf of the omitted inventor by a joint inventor or by a legal representative who shows a proprietary interest. Where the entity with a proprietary interest executes the declaration on behalf of the omitted inventor there must also be a showing that such action is necessary to preserve the rights of the parties or to prevent irreparable damage. 37 C.F.R. §§ 1.47(a) and (b).

This statement is made as to the exact facts that are relied upon to establish the diligent effort made to secure the execution of the declaration by the nonsigning inventor for the above-identified patent application before deposit thereof in the Patent and Trademark Office.

(check next item, if applicable)

☒ Because signing on behalf of the nonsigning inventor is by a person or entity showing a sufficient proprietary interest, this statement also recites facts as to why this action was necessary to preserve the rights of the parties or to prevent irreparable damage.

This statement is being made by an available person having first-hand knowledge of the facts recited therein.

NOTE: The statement "must be signed, where at all possible, by a person having first-hand knowledge of the facts recited therein." M.P.E.P. § 409.03(d), 8th ed. If different persons have first-hand knowledge of different facts, then a declaration from each such person as to those facts he or she knows should be submitted separately.

NOTE: Copies of documentary evidence, such as certified mail return receipt, cover letter of instructions, telegrams, etc., that support a finding that the nonsigning inventor could not be reached should be made part of the affidavit or declaration. It is important that the affidavit or declaration contain statements of fact as opposed to conclusions. M.P.E.P. § 409.03(d), 8th ed.

Name DAVID MORELAND

C/O CRUIKSHANK & FAIRWEATHER
19 ROYAL EXCHANGE SQUARE, GLASGOW,
G1 3AE, UNITED KINGDOM
Address

Name

Address

LAST KNOWN ADDRESS OF THE NONSIGNING INVENTOR

NOTE: The last known address of the nonsigning inventor must be stated so that the PTO can forward the notice of filing of the application to the nonsigning inventor at said address. 37 C.F.R. § 1.47.

EDWARD DOCHERTY SCOTT
Full name of nonsigning inventor

MAYBURN, 81 STATION ROAD, CARDENDEN, FIFE, KY5 0BW, UNITED KINGDOM
Last known address of nonsigning inventor

Note: Ordinarily, the last known address will be the last known residence of the nonsigning inventor, but other addresses at which the nonsigning inventor may be reached should also be given in the space below. M.P.E.P. § 409.03(e), 8th ed.

DETAILS OF REFUSAL OF NONSIGNING INVENTOR TO SIGN APPLICATION PAPERS

NOTE: Complete either these facts or the facts as to DETAILS OF EFFORTS TO REACH NONSIGNING INVENTOR.

NOTE: The circumstances of refusal must be specified by the person to whom the refusal was made and, before a refusal can be alleged, it must be demonstrated that a bona fide attempt was made to present a copy of the application papers (specification, including claims, drawings and declaration) to the nonsigning inventor for signature. A copy of the application papers should be sent to the last known address of the nonsigning inventor, or, if the nonsigning inventor is represented by counsel, to the address of the nonsigning inventor's attorney. The time and place of an oral refusal should be stated, or a copy of the written refusal should be attached.

If it is the conduct as a whole of the nonsigning inventor that is the refusal, then all the facts upon which this conclusion is based should be stated and a copy of any documentary evidence supporting these facts should be attached.

Where there is an express oral refusal, that fact along with the time and place of the refusal must be stated in the affidavit or declaration. When there is an express written refusal, a copy of the document evidencing that refusal must be made part of the affidavit of declaration.

Whenever the nonsigning inventor gives a reason for refusing to sign the application papers, that reason should be stated. M.P.E.P. § 409.03(d), 8th ed.

(use supplemental pages, if necessary)

International patent application No. PCT/GB02/00178 was filed on January 15th 2002 in the name of Neyrfor-Weir Limited, designating Andrew MacPherson Downie, Roy Powell and Edward Docherty Scott as the Applicants for the purposes of the United States of America only. The International application was based upon and claimed priority from UK patent application No. 0101014.9, filed January 15th 2001. The Applicant Edward Docherty Scott was an employee of Neyrfor-Weir Limited, employed as a Design Engineer, and all rights in any inventions developed by Mr. Scott were owned by Neyrfor-Weir Limited. Mr. Scott left the employment of Neyrfor-Weir Limited at the end of June 2001, prior to filing of the International application. However, on March 26th 2002, Mr. Scott completed a Power of Attorney in favour of Cruikshank & Fairweather in respect of the International application. I am an employee of Cruikshank & Fairweather, the European Patent Attorneys representing Neyrfor-Weir Limited, and subsequently Sii Neyrfor.

The International application was assigned by Neyrfor-Weir Limited to Smith International, Inc in an Assignment dated 31st July 2002.

Following sale of the Neyrfor-Weir Limited business to Smith International, Inc, Neyrfor-Weir Limited changed name to Sii Neyrfor (a business unit of Smith International (North Sea) Limited, owned by Smith International, Inc).

The US national phase of PCT/GB02/00178 was entered on July 14th 2003 and subsequently afforded the serial number 10/619,402. This application was drafted by me.

Around July 2003, Inez Schifani (the assistant to Mr. Sean Henkel at Smith International, Inc.) corresponded with Mr. Scott via email, advising that they would be contacting him asking him to complete a Declaration/Power of Attorney document in connection with US 10/619,402.

On August 2nd, 2003 Mr. Scott sent an email to Ms. Schifani requesting that Ms. Schifani call him to discuss the issue of completion of the Declaration. A copy of this email is attached.

On August 15th 2003, Ms. Schifani attempted to contact Mr. Scott by telephone, but was unable to contact him. Ms Schifani then sent an email to Mr. Scott requesting that he contact Mr. Henkel. A copy of this email is attached.

On August 18th 2003, Mr. Scott sent an email to Ms Schifani advising that he would contact Mr. Henkel for discussion. A copy of this email is attached. Mr. Scott contacted Mr. Henkel but verbally refused to sign the Declaration.

On October 10th, 2003, the USPTO issued a Notice to File Missing Parts in respect of the Oath/Declaration within an unextended period of two months from the date of the Notice.

On November 11th, 2003, I corresponded with Mr. Henkel advising him of a requirement to file the Declaration, and noting Mr. Henkel's previous comments that it was unlikely Mr. Scott would complete the document.

Also on November 11th, 2003, I corresponded with Mr. Scott enclosing a copy of the Declaration and advising him of a requirement for him to complete the document. A copy of this correspondence is attached.

On November 12th 2003, Ms. Schifani, having not heard further from Mr. Scott since his August 18th email, contacted Mr. Scott to enquire as to whether I or Mr. Henkel had contacted him. A copy of this email is attached.

On November 13th 2003, Mr. Scott sent an email to Ms Schifani indicating that he had never been employed by Sii-Neyrfor or Smith International, Inc and indicated that he was unwilling to sign the document on this basis. A copy of this email is attached. However, Mr. Scott was employed by Neyrfor-Weir Limited and the Declaration requiring completion is in relation to an invention developed during his period as an employee of Neyrfor-Weir Limited. Furthermore, Mr. Scott apparently indicated that he would sign the Declaration on receipt of a payment. Mr. Scott also referred to the fact that the patent application listed Mr. Roy Powell as an inventor. Cruikshank & Fairweather were advised by Mr. Downie that the inventors were himself (Andrew MacPherson Downie), Roy Powell and Edward Docherty Scott prior to filing of the initial UK application 0101014.9, which occurred prior to Mr. Scott's departure from Neyrfor-Weir Limited. Mr. Downie was an employee of Neyrfor-Weir Limited and subsequently of Sii Neyrfor, and the point of contact for Cruikshank & Fairweather at the time of filing the UK and International applications. As noted above, the International application was based upon the UK application.

On January 28th, 2004, I further corresponded with Mr. Scott enclosing a fresh copy of the Declaration and reminding him of a requirement for him to complete the document. A copy of this correspondence is attached.

On March 10th, 2004, I arranged for a continuation application of US 10/619,402 to be filed. This was subsequently given the serial No. 10/798,201.

On May 26th, 2004, the USPTO issued a Notice to File Missing Parts in respect of the Oath/Declaration for US 10/798,201 within an unextended period of two months from the date of the Notice.

On June 29th 2004, I corresponded with Mr. Scott advising him of filing of the continuation application 10/798,201, enclosing a copy of the application as filed comprising the specification, including claims, drawings and declaration, and further advising and explaining the requirement for him to complete a Declaration. A copy of the correspondence is attached. Mr. Scott continues to refuse to complete the required Declaration.

PROOF OF NEED TO PREVENT IRREPARABLE DAMAGE OR PRESERVE THE RIGHTS OF THE PARTIES

NOTE: This proof must be presented where the declaration is signed by a person with sufficient proprietary interest for the nonsigning inventor (37 C.F.R. § 1.47(b)), but is not a requirement when the person signing for the nonsigning inventor is a joint inventor. (37 C.F.R. § 1.47(a))

If a statutory bar is involved, the act or publication which is believed to constitute the bar should be identified. If a claim for priority is involved, the prior application or applications should be identified.

A diligent effort to prepare the application and obtain the inventor's signature thereon must be made, even if the application is being filed to avoid a bar or to claim priority.

Irreparable damage may be established by showing that a filing date is necessary to (1) avoid a statutory bar or (2) make a claim for priority, which should identify the prior application(s) involved.

M.P.E.P. § 409.03(g), 8th ed.

(if this proof is not needed and not being presented, then draw a line through this page of the form)

(use supplemental pages, if necessary)

A filing date is necessary to preserve the rights of the party and to prevent irreparable damage.

A Notice to File Missing Parts under 35 U.S.C. § 371 was issued requiring filing of an oath or declaration of inventors in compliance with 37 C.F.R. § 1.497(a) and (b) which must be submitted within an extended period of five (5) months from the date of the date of the Notice to File Missing Parts. Smith International, Inc. and the other 2 inventors will suffer irreparable damage caused by eventual loss of priority date due to failure to file within the prescribed statutory time period.

This invention has been assigned to Neyrfor-Weir Limited, by all of the inventors except Mr. Scott. Thus, Smith International, Inc., the successors in title to Neyrfor-Weir Limited, by and through the undersigned agent, submits that Smith International, Inc, has sufficient proprietary interest in the subject matter to justify the filing of the application and, therefore, submits to file the declaration for the application as required by the Notice to File Missing Parts.

22nd July 2004
Date

signature of person making statement

Schonewille, Heather P1200305

From: Moreland, David
Sent: 19 May 2004 11:04
To: Schonewille, Heather
Subject: FW: Patent assignation

Importance: High

-----Original Message-----
From: Henkel, Sean [mailto:SHenkel@smith.com]
Sent: 13 November 2003 20:27
To: Moreland, David
Subject: FW: Patent assignation
Importance: High

Dr. Moreland,

Per our conversation this morning, below is our most recent correspondence with Mr. Scott. When I last spoke with him, he was of the position that he would only cooperate for payment (as he also indicates in his most recent email) despite his obligation under English law to assign his rights. Therefore, I guess it would be best to move forward assuming that he is unwilling to cooperate.

Along these lines, I'm somewhat confused by the suggestion in your letter of Nov. 12 to file a petition seeking to remove him as an inventor. Is this the proper course of action in Canada? Also, please let me know whether the Canadian application was filed in the name of the individual inventors or in the name of the company.

Regards,

Sean Henkel

-----Original Message-----
From: Schifani, Inez
Sent: Thursday, November 13, 2003 9:05 AM
To: Henkel, Sean
Subject: FW: Patent assignation
Importance: High

-----Original Message-----
From: Ed Scott [mailto:E.Scott@spsinternational.com]
Sent: Thursday, November 13, 2003 5:35 AM
To: Schifani, Inez
Subject: RE: Patent assignation
Importance: High

Inez,

My regards to you, to answer your question I have several months ago discussed by telephone the issue with Sean and expressed my concerns regarding imperatives and incentives surrounding this issue, at the conclusion of the conversation Sean suggested that he would get back to me within a few days with a response to my comments, regrettably to date no response has been forthcoming from Sean.

My comments basically centred on the fact that I had never been employed by Sii-Neyrfor or Smith International Inc. and therefore my obligations if any were not with any Smith International Inc. entity.

The next communication by post, some weeks later was from Dr. David

Moreland of Cruikshank & Fairweather asking me to sign over my rights to the patent in question, my interpretation of the request was that another individual had become involved in the patent in question after my departure from Neyrfor-Weir Ltd. namely Roy Powell with whom I had never collaborated with in any patent application or product design and therefore this patent may be a new one based on earlier work I carried out or that was waiting a design conclusion prior to registration in collaboration with Cruikshank & Fairweather. I am also of the understanding that the original patent application may have been registered after my departure from Neyrfor-Weir Ltd.

To clarify I was involved in several patent applications and exclude from others after contributing to them, I therefore do not know for certain which patents were registered before or after my departure from Neyrfor-Weir.

I do understand that my signature may be requested, please understand that this process may be expedited without any undue delay by the application of the age old lubricant, I will be direct, as a professional Engineer I charge for my services.

Trusting that the preceding improves your understanding of present position without detriment to all parties concerned regarding the request of Patent assignation.

est Regards
Ed.

-----Original Message-----
From: Schifani, Inez [mailto:ISchifani@smith.com]
Sent: 12 November 2003 17:22
To: Ed Scott
Subject: RE: Patent assignation

Hello Mr. Scott! Hope all is well with you. I am just checking in with you to see if Mr. Henkel or the attorney from Cruikshank & Fairweather ever contacted you? Apparently they still need your signature.
Regards, Inez Schifani

-----Original Message-----
From: Ed Scott [mailto:E.Scott@spsinternational.com]
Sent: Monday, August 18, 2003 3:40 AM
To: Schifani, Inez
Subject: RE: Patent assignation

Inez,
Many thanks, how does the Turbodrill business go these days, such a magnificent engineering product. I will arrange to contact Sean early this week for discussion. Regards Ed

-----Original Message-----
From: Schifani, Inez [mailto:ISchifani@smith.com]
Sent: 15 August 2003 21:17
To: Ed Scott
Subject: RE: Patent assignation

Mr. Scott, My apologies, I was not able to get through to your mobile number. If you can, please call Sean Henkel. He is a patent attorney here that is handling this application. His number is 281-233-5945.

Thanks! And best regards,

Inez Schifani
Patent Administrator
281-233-5337

-----Original Message-----

From: Ed Scott [mailto:E.Scott@spsinternational.com]
Sent: Saturday, August 02, 2003 11:06 AM
To: Schifani, Inez
Subject: Patent assignation
Importance: High

Dear Inez,

Very surprised to receive a communication from Smith Inc. thought it might be Roger Brown head hunting me to fix his Turbodrill problems!. Regarding the Patent Assignation I would request that you call me to discuss the issues, I will be out of the UK for the next two weeks, however you should be able to contact me on the following mobile number 07967 037957. I will return to the UK on or about the 15th of August when I will be in the UK for one week then travelling to Lafayette Louisiana in the Last week of August.

Regards
Ed.

Ed. Scott B.Sc. (Hons). Dip. I.T.
Manager, Engineering Design
SPS International Ltd
Endeavour Drive
Arnhall Business Park
esthill
Aberdeen
Aberdeenshire
United Kingdom
AB32 6UF
Tel: 01224 742200
e-mail: e.scott@spsinternational.com

Residential Ph. No.: 01224 742200

This email has been scanned for all viruses by the MessageLabs Email Security System. For more information on a proactive email security service working around the clock, around the globe, visit http://www.messagelabs.com

D.C. MacDougall C.P.A., R.T.M.A., M.Sc., B.Sc., M.I.E.E.
J.T. Szczuka C.P.A., R.T.M.A., B.Sc., M.Sc., A.K.C.
R.S. Nalsmith C.P.A., M.I.T.M.A., B.Sc., M.Sc., Ph.D., M.I.E.E.
M.G. Horner C.P.A., R.T.M.A., M.A., D.Phil.
A. Shanks C.P.A., R.T.M.A., B.Sc.
M. Doherty M.I.T.M.A., B.A.
C. Newell C.P.A., M.I.T.M.A., B.Sc.
D. Moreland C.P.A., B.Sc., Ph.D., C.Phys., M.Inst.P., M.I.E.E.
P.G. Chapman C.P.A., B.Sc., Ph.D.
M. Kinsler C.P.A., B.Sc., Ph.D., M.Sc.
D.C. Thomson M.I.T.M.A.
R. French M.I.T.M.A., B.Sc., Ph.D.
R. Orr C.P.A., B.ENG.
G. Wilson C.P.A., B.Sc., Ph.D., C.Chem, M.R.S.C.
S.A.F. Chapman C.P.A., M.I.T.M.A., B.A., M.Sc.
D.R. Aitken M.A.(Hons)
J. Dyer B.Sc., D.Phil.
A.M. Dunn B.Sc., D.Phil.
A.J. Docherty M.ENG.
E.J. Godwin C.P.A., M.A. (LONDON OFFICE)
William P. McCallum C.P.A., M.I.T.M.A. (Consultant)

CRUIKSHANK & FAIRWEATHER

CHARTERED PATENT AGENTS
EUROPEAN PATENT ATTORNEYS

International Patents, Designs and Trademarks

A member of the MARKS & CLERK Group

19 ROYAL EXCHANGE SQUARE,
GLASGOW G1 3AE

Facsimile: 0141-221 7739
DX-GW164
Telephone: 0141-221 5767

Edinburgh Office:
10 Hope Street EH2 4DB
Telephone: 0131-225 4500
DX-ED185

London Office:
57/60 Lincolns Inn Fields WC2A 3LS
Telephone: 020-7400 3000

Our ref: DM/RO/HSo/P12003US

Your ref:

11 November 2003

Ed Scott
Mayburn
81 Station Road
Cardenden
Fife
KY5 0BW

Dear Mr Scott,

US Patent Application
derived from PCT/GB02/00178
Smith International, Inc
"Safety Sub"

Please find enclosed Declaration and Assignment documents which are required in connection with the above US patent application.

Please complete the documents where indicated and return these to us within the next two weeks.

Yours sincerely,
CRUIKSHANK & FAIRWEATHER

Dr David Moreland

Enc: Declaration.
Assignment.

WINSTON & STRAWN DOCKET NO.: **85170-4500**

DECLARATION FOR NON-PROVISIONAL PATENT APPLICATION

As a below named inventor, I hereby declare that:

My residence, post office address and citizenship are as stated below at 201 et seq. beneath my name.

I believe I am the original, first and sole inventor if only one name is listed at 201 below, or an original, first and joint inventor if plural names are listed at 201 et seq. below, of the subject matter which is claimed and for which a patent is sought on the invention entitled in:

IMPROVED DOWNHOLE TOOL

and for which a patent application:

☒ is attached hereto and includes amendment(s) filed on _____ *(if applicable)*

☒ was filed in the United States on **July 15, 2003** as Application No. 10/619,402 *(declaration not accompanying application)* with amendment(s) filed on _____ *(if applicable)*

☐ was filed as PCT international Application No. _____ on _____ and was amended under PCT Article 19 on _____ *(if applicable)*

I hereby state that I have reviewed and understand the contents of the above identified application, including the claims, as amended by any amendment referred to above.

I acknowledge the duty to disclose information known to me to be material to patentability as defined in Title 37, Code of Federal Regulations, § 1.56.

I hereby claim foreign priority benefits under Title 35, United States Code, § 119(a)-(d) of any foreign application(s) for patent or inventor's certificate listed below and have also identified below any foreign application for patent or inventor's certificate having a filing date before that of the application on which priority is claimed:

EARLIEST FOREIGN APPLICATION(S), IF ANY, FILED PRIOR TO THE FILING DATE OF THE APPLICATION			
APPLICATION NUMBER	COUNTRY	DATE OF FILING (day, month, year)	PRIORITY CLAIMED
0101014.9	**Great Britain**	**January 15, 2001**	☒ YES ☐ NO
			☐ YES ☐ NO

I hereby claim the benefit under Title 35, United States Code, § 119(e) of any United States provisional application(s) listed below.

PROVISIONAL APPLICATION NUMBER	FILING DATE

I hereby claim the benefit under Title 35, United States Code, § 120 of any United States application(s) listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in the prior United States application in the manner provided by the first paragraph of Title 35, United States Code § 112, I acknowledge the duty to disclose information known to me which is material to patentability as defined in Title 37, Code of Federal Regulations, § 1.56 which became available between the filing date of the prior application and the national or PCT international filing date of this application:

NON-PROVISIONAL APPLICATION NO.	FILING DATE	STATUS		
		PATENTED	PENDING	ABANDONED
PCT/GB02/00178	**January 15, 2002**		**X**	

* for use only when the application is assigned to a company, partnership or other organization.

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issuing thereon.

201	FULL NAME OF INVENTOR	LAST NAME **DOWNIE**	FIRST NAME **Andrew**	MIDDLE NAME **McPherson**	
	RESIDENCE & CITIZENSHIP	CITY **Fife**	STATE OR FOREIGN COUNTRY **United Kingdom**	COUNTRY OF CITIZENSHIP **United Kingdom**	
	POST OFFICE ADDRESS	STREET **3 Kingseat Road, Dunfermline**	CITY **Fife**	STATE OR COUNTRY **United Kingdom**	ZIP CODE **KY12 0DE**
		SIGNATURE OF INVENTOR 201		DATE	
202	FULL NAME OF INVENTOR	LAST NAME **SCOTT**	FIRST NAME **Edward**	MIDDLE NAME **Docherty**	
	RESIDENCE & CITIZENSHIP	CITY **Fife**	STATE OR FOREIGN COUNTRY **United Kingdom**	COUNTRY OF CITIZENSHIP **United Kingdom**	
	POST OFFICE ADDRESS	STREET **Mayburn, 81 Station Road, Cardenden,**	CITY **Fife**	STATE OR COUNTRY **United Kingdom**	ZIP CODE **KY5 0BW**
		SIGNATURE OF INVENTOR 202		DATE	
203	FULL NAME OF INVENTOR	LAST NAME **POWELL**	FIRST NAME **Roy**	MIDDLE NAME	
	RESIDENCE & CITIZENSHIP	CITY **Estes Park**	STATE OR FOREIGN COUNTRY **Colorado**	COUNTRY OF CITIZENSHIP **United Kingdom**	
	POST OFFICE ADDRESS	STREET **269 Solomon Drive**	CITY **Estes Park**	STATE OR COUNTRY **Colorado**	ZIP CODE **85017**
		SIGNATURE OF INVENTOR 203		DATE	

ASSIGNMENT

WHEREAS, each of,

Andrew McPherson DOWNIE, a citizen of Great Britain, residing at; 3 Kingseat Road, Dunfermline, Fife KY12 0DE, United Kingdom;

Edward Docherty SCOTT, a citizen of Great Britain, residing at Mayburn, 81 Station Road, Cardenden, Fife KY5 0BW, United Kingdom; and

Roy POWELL, a citizen of Great Britain, residing at 269 Solomon Drive, Estes Park, Colorado, 85017, USA.

ASSIGNOR, is an inventor of the invention in **IMPROVED DOWNHOLE TOOL,** for which a United States patent application is identified by Winston & Strawn Docket No. 85170-4500 and

☐ is being filed concurrently with the recordation of this Assignment.
☒ was filed on July 14, 2003 asApplication No. 10/619,402

WHEREAS, **NEYRFOR-WEIR LIMITED**, having a place of business at Unit 2/1, 2/2, The E-Centre, Cooperage Way Business Village, Cooperage Way, Alloa FK10 3LP, Great Britain, ASSIGNEE, is desirous of obtaining each inventor's right, title and interest in, to and under the said invention and the said application:

NOW, THEREFORE, in consideration of the sum of One Dollar ($1.00) to each inventor in hand paid, and other good and valuable consideration, the receipt of which is hereby acknowledged, each ASSIGNOR has sold, assigned, transferred and set over, and by these presents does hereby sell, assign, transfer and set over, unto the said ASSIGNEE, its successors, legal representatives and assigns, his or her entire right, title and interest in, to and under the said invention, and the said United States application and all divisions, renewals and continuations thereof, and all Patents of the United States which may be granted thereon and all reissues and extensions thereof;

And each ASSIGNOR hereby authorizes and requests the Commissioner of Patents and Trademarks of the United States, and any Official of any country or countries foreign to the United States, whose duty it is to issue patents or other evidence or forms of industrial property protection on applications as aforesaid, to issue the same to the said ASSIGNEE, its successors, legal representatives and assigns, in accordance with the terms of this instrument;

And each ASSIGNOR hereby covenants and agrees that they have full right to convey the entire interest herein assigned, and that they have not executed, and will not execute, any agreement in conflict herewith;

And each ASSIGNOR further covenants and agrees that they will communicate to the said ASSIGNEE, its successors, legal representatives and assigns, any facts known to them respecting said invention, and testify in any legal proceeding, sign all lawful papers, execute all divisional, continuing, reissue and foreign applications, make all rightful oaths, and generally do everything possible to aid the said ASSIGNEE or, its successors, legal representatives and assigns, to obtain and enforce proper protection for said invention in all countries;

And each ASSIGNOR hereby authorizes the ASSIGNEE's patent attorney to complete this form by the addition of the application number, application filing date, and attorney docket number, if necessary.

In witness whereof, each inventor has affixed his or her signature.

_____ _____

Date **Andrew McPherson DOWNIE**

On this _____ day of _____, 2003, before me, personally appeared **Andrew McPherson DOWNIE**, to me known and known to me to be the person of that name, who signed the foregoing instrument and acknowledged the same to be his/her free act and deed.

_____

Witness

_____ _____

Date **Edward Docherty SCOTT**

On this _____ day of _____, 2003, before me, personally appeared **Edward Docherty SCOTT**, to me known and known to me to be the person of that name, who signed the foregoing instrument and acknowledged the same to be his/her free act and deed.

_____

Witness

Date

Roy POWELL

STATE OF)
)
COUNTY OF)

On this _____ day of _____, 2003, before me, a Notary Public, personally appeared **Roy POWELL**, to me known and known to me to be the person of that name, who signed the foregoing instrument and acknowledged the same to be his/her free act and deed.

Notary Public

My Commission Expires

D.C. MacDougall C.P.A., R.T.M.A., M.Sc., B.Sc., M.I.E.E.
J.T. Szczuka C.P.A., R.T.M.A., B.Sc., M.Sc., A.K.C.
R.S. Naismith C.P.A., M.I.T.M.A., B.Sc., M.Sc., Ph.D., M.I.E.E.
M.G. Horner C.P.A., R.T.M.A., M.A., D.Phil.
A. Shanks C.P.A., R.T.M.A., B.Sc.
M. Doherty M.I.T.M.A., B.A.
C. Newell C.P.A., M.I.T.M.A., B.Sc.
D. Moreland C.P.A., B.Sc., Ph.D., C.Phys., M.Inst.P., M.I.E.E.
P.G. Chapman C.P.A., B.Sc., Ph.D.
M. Kinsler C.P.A., B.Sc., Ph.D., M.Sc.
D.C. Thomson M.I.T.M.A.
R. French M.I.T.M.A., B.Sc., Ph.D.
R. Orr C.P.A., B.ENG.
G. Wilson C.P.A., B.Sc., Ph.D., C.Chem, M.R.S.C.
S.A.P. Chapman C.P.A., M.I.T.M.A., B.A., M.Sc.
D.R. Aitken M.A.(Hons)
J. Dyer B.Sc., D.Phil.
A.M. Dunn B.Sc., D.Phil.
A.J. Docherty M.ENG.
E.J. Godwin C.P.A., M.A. (LONDON OFFICE)
William P. McCallum C.P.A., M.I.T.M.A. (Consultant)

CRUIKSHANK & FAIRWEATHER

CHARTERED PATENT AGENTS
EUROPEAN PATENT ATTORNEYS

International Patents, Designs and Trademarks

A member of the MARKS & CLERK Group

19 ROYAL EXCHANGE SQUARE,
GLASGOW G1 3AE

Facsimile: 0141-221 7739
DX-GW164
Telephone: 0141-221 5767

Edinburgh Office:
10 Hope Street EH2 4DB
Telephone: 0131-225 4500
DX-ED185

London Office:
57/60 Lincolns Inn Fields WC2A 3LS
Telephone: 020-7400 3000

Our ref: DM/RO/HSo/P12003US

Your ref:

28 January 2004

Ed Scott
Mayburn
81 Station Road
Cardenden
Fife
KY5 0BW

Dear Mr Scott,

US Patent Application
derived from PCT/GB02/00178
Smith International, Inc
"Safety Sub"

Further to our letter of 11th November 2003, please find enclosed further copies of Declaration and Assignment documents which are required in connection with the above US patent application.

Please complete the documents where indicated and return these to us within the next two weeks.

Yours sincerely,
CRUIKSHANK & FAIRWEATHER

Dr David Moreland

Enc: Declaration.
Assignment.

CC: Sean Henkel, Smith International, Inc.

WINSTON & STRAWN DOCKET NO.: **85170-4500**

DECLARATION FOR NON-PROVISIONAL PATENT APPLICATION

As a below named inventor, I hereby declare that:

My residence, post office address and citizenship are as stated below at 201 et seq. beneath my name.

I believe I am the original, first and sole inventor if only one name is listed at 201 below, or an original, first and joint inventor if plural names are listed at 201 et seq. below, of the subject matter which is claimed and for which a patent is sought on the invention entitled in:

IMPROVED DOWNHOLE TOOL

and for which a patent application:

☒ is attached hereto and includes amendment(s) filed on _____ *(if applicable)*

☒ was filed in the United States on **July 15, 2003** as Application No. 10/619,402 *(declaration not accompanying application)* with amendment(s) filed on _____ *(if applicable)*

☐ was filed as PCT international Application No. _____ on _____ and was amended under PCT Article 19 on _____ *(if applicable)*

I hereby state that I have reviewed and understand the contents of the above identified application, including the claims, as amended by any amendment referred to above.

I acknowledge the duty to disclose information known to me to be material to patentability as defined in Title 37, Code of Federal Regulations, § 1.56.

I hereby claim foreign priority benefits under Title 35, United States Code, § 119(a)-(d) of any foreign application(s) for patent or inventor's certificate listed below and have also identified below any foreign application for patent or inventor's certificate having a filing date before that of the application on which priority is claimed:

EARLIEST FOREIGN APPLICATION(S), IF ANY, FILED PRIOR TO THE FILING DATE OF THE APPLICATION				
APPLICATION NUMBER	COUNTRY	DATE OF FILING (day, month, year)	PRIORITY CLAIMED	
0101014.9	**Great Britain**	**January 15, 2001**	☒ YES	☐ NO
			☐ YES	☐ NO

I hereby claim the benefit under Title 35, United States Code, § 119(e) of any United States provisional application(s) listed below.

PROVISIONAL APPLICATION NUMBER	FILING DATE

I hereby claim the benefit under Title 35, United States Code, § 120 of any United States application(s) listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in the prior United States application in the manner provided by the first paragraph of Title 35, United States Code § 112, I acknowledge the duty to disclose information known to me which is material to patentability as defined in Title 37, Code of Federal Regulations, § 1.56 which became available between the filing date of the prior application and the national or PCT international filing date of this application:

NON-PROVISIONAL APPLICATION NO.	FILING DATE	STATUS		
		PATENTED	PENDING	ABANDONED
PCT/GB02/00178	**January 15, 2002**		**X**	

* for use only when the application is assigned to a company, partnership or other organization.

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issuing thereon.

201	FULL NAME OF INVENTOR	LAST NAME **DOWNIE**	FIRST NAME **Andrew**	MIDDLE NAME **McPherson**	
	RESIDENCE & CITIZENSHIP	CITY **Fife**	STATE OR FOREIGN COUNTRY **United Kingdom**	COUNTRY OF CITIZENSHIP **United Kingdom**	
	POST OFFICE ADDRESS	STREET **3 Kingseat Road, Dunfermline**	CITY **Fife**	STATE OR COUNTRY **United Kingdom**	ZIP CODE **KY12 0DE**
		SIGNATURE OF INVENTOR 201		DATE	
202	FULL NAME OF INVENTOR	LAST NAME **SCOTT**	FIRST NAME **Edward**	MIDDLE NAME **Docherty**	
	RESIDENCE & CITIZENSHIP	CITY **Fife**	STATE OR FOREIGN COUNTRY **United Kingdom**	COUNTRY OF CITIZENSHIP **United Kingdom**	
	POST OFFICE ADDRESS	STREET **Mayburn, 81 Station Road, Cardenden,**	CITY **Fife**	STATE OR COUNTRY **United Kingdom**	ZIP CODE **KY5 0BW**
		SIGNATURE OF INVENTOR 202		DATE	
203	FULL NAME OF INVENTOR	LAST NAME **POWELL**	FIRST NAME **Roy**	MIDDLE NAME	
	RESIDENCE & CITIZENSHIP	CITY **Estes Park**	STATE OR FOREIGN COUNTRY **Colorado**	COUNTRY OF CITIZENSHIP **United Kingdom**	
	POST OFFICE ADDRESS	STREET **269 Solomon Drive**	CITY **Estes Park**	STATE OR COUNTRY **Colorado**	ZIP CODE **85017**
		SIGNATURE OF INVENTOR 203		DATE	

ASSIGNMENT

WHEREAS, each of,

Andrew McPherson DOWNIE, a citizen of Great Britain, residing at; 3 Kingseat Road, Dunfermline, Fife KY12 0DE, United Kingdom;

Edward Docherty SCOTT, a citizen of Great Britain, residing at Mayburn, 81 Station Road, Cardenden, Fife KY5 0BW, United Kingdom; and

Roy POWELL, a citizen of Great Britain, residing at 269 Solomon Drive, Estes Park, Colorado, 85017, USA.

ASSIGNOR, is an inventor of the invention in **IMPROVED DOWNHOLE TOOL,** for which a United States patent application is identified by Winston & Strawn Docket No. 85170-4500 and

☐ is being filed concurrently with the recordation of this Assignment.
☒ was filed on July 14, 2003 asApplication No. 10/619,402

WHEREAS, **NEYRFOR-WEIR LIMITED,** having a place of business at Unit 2/1, 2/2, The E-Centre, Cooperage Way Business Village, Cooperage Way, Alloa FK10 3LP, Great Britain, ASSIGNEE, is desirous of obtaining each inventor's right, title and interest in, to and under the said invention and the said application:

NOW, THEREFORE, in consideration of the sum of One Dollar ($1.00) to each inventor in hand paid, and other good and valuable consideration, the receipt of which is hereby acknowledged, each ASSIGNOR has sold, assigned, transferred and set over, and by these presents does hereby sell, assign, transfer and set over, unto the said ASSIGNEE, its successors, legal representatives and assigns, his or her entire right, title and interest in, to and under the said invention, and the said United States application and all divisions, renewals and continuations thereof, and all Patents of the United States which may be granted thereon and all reissues and extensions thereof;

And each ASSIGNOR hereby authorizes and requests the Commissioner of Patents and Trademarks of the United States, and any Official of any country or countries foreign to the United States, whose duty it is to issue patents or other evidence or forms of industrial property protection on applications as aforesaid, to issue the same to the said ASSIGNEE, its successors, legal representatives and assigns, in accordance with the terms of this instrument;

And each ASSIGNOR hereby covenants and agrees that they have full right to convey the entire interest herein assigned, and that they have not executed, and will not execute, any agreement in conflict herewith;

And each ASSIGNOR further covenants and agrees that they will communicate to the said ASSIGNEE, its successors, legal representatives and assigns, any facts known to them respecting said invention, and testify in any legal proceeding, sign all lawful papers, execute all divisional, continuing, reissue and foreign applications, make all rightful oaths, and generally do everything possible to aid the said ASSIGNEE or, its successors, legal representatives and assigns, to obtain and enforce proper protection for said invention in all countries;

And each ASSIGNOR hereby authorizes the ASSIGNEE's patent attorney to complete this form by the addition of the application number, application filing date, and attorney docket number, if necessary.

In witness whereof, each inventor has affixed his or her signature.

_____ _____

Date **Andrew McPherson DOWNIE**

On this _____ day of _____, 2003, before me, personally appeared **Andrew McPherson DOWNIE**, to me known and known to me to be the person of that name, who signed the foregoing instrument and acknowledged the same to be his/her free act and deed.

_____

Witness

_____ _____

Date **Edward Docherty SCOTT**

On this _____ day of _____, 2003, before me, personally appeared **Edward Docherty SCOTT**, to me known and known to me to be the person of that name, who signed the foregoing instrument and acknowledged the same to be his/her free act and deed.

_____

Witness

Date

Roy POWELL

STATE OF)
)
COUNTY OF)

On this _____ day of _____, 2003, before me, a Notary Public, personally appeared **Roy POWELL**, to me known and known to me to be the person of that name, who signed the foregoing instrument and acknowledged the same to be his/her free act and deed.

Notary Public

My Commission Expires

D.C. MacDougall C.P.A., R.T.M.A., M.Sc., B.Sc., M.I.E.E.
J.T. Szczuka C.P.A., R.T.M.A., B.Sc., M.Sc., A.K.C.
R.S. Naismith C.P.A., M.I.T.M.A., B.Sc., M.Sc., Ph.D., M.I.E.E.
M.G. Horner C.P.A., R.T.M.A., M.A., D.Phil.
A. Shanks C.P.A., R.T.M.A., B.Sc.
M. Doherty M.I.T.M.A., B.A.
C. Newell C.P.A., M.I.T.M.A., B.Sc.
D. Moreland C.P.A., B.Sc., Ph.D., C.Phys., M.Inst.P., M.I.E.E.
P.G. Chapman C.P.A., B.Sc., Ph.D.
M. Kinsler C.P.A., B.Sc., Ph.D., M.Sc.
D.C. Thomson M.I.T.M.A.
R. French M.I.T.M.A., B.Sc., Ph.D.
R. Orr C.P.A., B.ENG.
G. Wilson C.P.A., B.Sc., Ph.D., C.Chem, M.R.S.C.
S.A.F. Chapman C.P.A., M.I.T.M.A., B.A., M.Sc.
D.R. Aitken M.A.(Hons)
J. Dyer B.Sc., D.Phil.
A.M. Dunn B.Sc., D.Phil.
A.J. Docherty M.ENG.
E.J. Godwin C.P.A., M.A. (LONDON OFFICE)
William P. McCallum C.P.A., M.I.T.M.A. (Consultant)

CRUIKSHANK & FAIRWEATHER

CHARTERED PATENT AGENTS
EUROPEAN PATENT ATTORNEYS

International Patents, Designs and Trademarks

A member of the MARKS & CLERK Group

19 ROYAL EXCHANGE SQUARE,
GLASGOW G1 3AE

Facsimile: 0141-221 7739
DX-GW164
Telephone: 0141-221 5767

Edinburgh Office:
10 Hope Street EH2 4DB
Telephone: 0131-225 4500
DX-ED185

London Office:
57/60 Lincolns Inn Fields WC2A 3LS
Telephone: 020-7400 3000

Our Ref: DM/RO/HSo/P12003US

Your Ref: 02-SNR53

29 June 2004

Ed Scott
Mayburn
81 Station Road
Cardenden
Fife
KY5 0BW

Dear Ed,

US Continuation Patent Application No. 10/798,201
Neyrfor-Weir Limited
"Safety Sub"

Further to previous correspondence, I enclose herewith a copy of the specification as filed in connection with US patent application No. 10/798,201, which is a continuation of US patent application No. 10/619,402.

US 10/619,402 was derived from International patent application number PCT/GB02/00178. The specification for this PCT application is based upon the specification as filed in connection with UK patent application No. 0101014.9, from which the PCT application claims priority. A copy of the front page of the PCT application as published is attached, which lists the relevant application details and inventors. You will recall that you completed a Power of Attorney relating to the PCT application, in favour of Cruikshank & Fairweather, on 26th March 2002.

As an employee of Neyrfor-Weir Limited, all rights in any inventions developed by you were owned by Neyrfor-Weir Limited.

As a consequence of the acquisition of Neyrfor-Weir by Smith International, Inc., the patent rights in the UK application and the PCT application were assigned by Neyrfor-Weir Limited to Smith International, Inc and handled by Sii Neyrfor (a business unit of Smith International (North Sea) Limited, owned by Smith International, Inc.).

Cont...

29 June 2004

As one of the named Inventors we require you to complete a Declaration and Assignment of rights to Neyrfor-Weir Limited in order to complete the filing requirements for the US continuation application 10/798,201. A copy of a Declaration/Power of Attorney and Assignment document to be completed by you is also attached.

Please complete the documents where indicated and return these to us as soon as possible.

Should you have any questions, please contact me directly.

Yours sincerely,

Dr David Moreland
Cruikshank & Fairweather
E-mail: dmoreland@cruikfair.com

Enc: US Specification.
Copy front page PCT publication.
Declaration/Power of Attorney and Assignment.

CC: Sean C. Henkel.

DOWNHOLE TOOL

Cross-Reference to Related Applications

This application is a continuation of application serial no. 10/619,402 filed July 14, 2003, which is a continuation of International application PCT/GB02/00178 filed January 15, 2002, the entire content of each which is expressly incorporated herein by reference thereto.

Background Art

The present invention relates to a downhole tool capable of forming part of a selectively releasable joint, a downhole drilling assembly that includes that selectively releasable joint and to a method of selectively releasing a part of a downhole drilling assembly from the remainder of the assembly. In particular, the present invention relates to such a tool, assembly and method where a selectively releasable joint is provided which may be released downhole to allow, for example, a drill bit of a drilling assembly to be released from the remainder of the assembly, in the event, for example, that the drill bit becomes stuck during a drilling operation.

In the art of drilling holes in the earth for the purposes of recovering oil and gas accumulations, it is common to use a hydraulic motor to drive the drill bit. In a typical set up a drill bit with a suitable cutting structure is connected to a bottom hole assemblage of drill collars and pipes connected to the surface. The pipes provide a conduit through which a fluid is transmitted to provide hydraulic pressure and flow to the motor. The resultant rotation of the drill bit creates a means for destruction of rock and deepening of the earth bore. In the process of drilling these earth bores it is sometimes possible that the drilling bit becomes stuck in the well bore, for example, due to movements of the rock or other means, thus

preventing further deepening of the borehole or preventing extraction of the drilling assembly from the borehole. Under these circumstances it is often necessary to release the drill pipe above the drilling motor and/or any in hole measurement tools, before abandoning or sidetracking the wellbore. This can lead to considerable expense due to the value of the lost equipment and the costs incurred in drilling and recovering the lost wellbore.

The present invention now obviates or at least mitigates at least one of the foregoing disadvantages.

Summary of the Invention

According to a first aspect of the present invention there is provided a downhole tool for use in a downhole tool assembly, the tool comprising :

a first body and a second body mounted for relative rotation;

a joint part for use in forming a selectively releasable joint between the second body and a part of the assembly couplable to the second body;

locking means for locking the first and second bodies relative to one another against relative rotation, in use, so as to allow a release force to be applied through the first body to release the releasable joint and allow the tool to be separated from the part of the assembly.

This is particularly advantageous in that it may allow the tool to be separated from the part of the assembly at a desired location within the borehole, such that the tool may be recovered to surface. Preferably, the downhole tool assembly comprises a downhole drilling assembly and the downhole tool includes a drilling motor for driving a drill bit of the assembly. Thus, the present invention may particularly advantageously allow a drilling motor and associated assembly to be released and

recovered to surface in the event that a drill bit of a drilling assembly including the motor becomes stuck during a drilling operation. It will be understood that this allows the stuck drilling assembly to be released at a point between the drill bit and the downhole motor, significantly reducing costs by allowing the part of the expensive drilling assembly including the drilling motor to be recovered. Furthermore, this may allow the stuck drill bit to be "fished" from the hole and drilling to recommence in the original wellbore, thereby saving the time and cost of plugging and re-drilling a sidetrack borehole.

According to a second aspect of the present invention, there is provided a downhole tool assembly including the downhole tool of the first aspect of the present invention.

According to a third aspect of the present invention, there is provided a downhole drilling assembly comprising:

a downhole drilling motor having a motor body for coupling to tubing of the assembly and a rotatable drive shaft for coupling to a drill bit of the assembly;

a selectively releasable joint located between the drilling motor and the drill bit; and

locking means for locking the drive shaft relative to the body of the motor to allow a release force to be applied through the assembly tubing and the motor body to release the releasable joint and allow the drill bit to be separated from a remainder of the drilling assembly.

By this arrangement, the remainder of the assembly may be retrieved in the event that the bit becomes stuck during a drilling operation.

Preferably, the drilling motor comprises a fluid driven motor, such as a turbine driven by, for example, drilling fluids such as a drilling mud. Alternatively, the drilling motor may comprises a positive displacement motor (PDM), an electric motor or any other suitable downhole motor.

The selectively releasable joint may be located between the motor shaft and the drill bit, to allow separation of the drill bit from the remainder of the drilling assembly at a location between the drill bit and the motor shaft. Preferably, the joint is configured to release at a release force which is less than the force applied to "make up" (assemble) the joint for drilling operations. It will be understood that the term "make up", is a term well known in the art, and refers to the making up of, for example, a string of well tubing carrying any desired well tools, such as a drilling assembly, by connecting the various parts together through a series of threaded joints, connected at a desired mating force by applying a corresponding mating torque. Thus, the joint may be configured to release at a release torque less than the torque required to make up the joint. The release torque may be lower than 70% and preferably in the region of 30-50% of the torque required to make up the joint and in particular may be 40% of the torque required to make up the joint. This advantageously allows the releasable joint to be released, following locking of the drive shaft relative to the body of the motor, by "backing-off" the assembly. This may be achieved by rotating tubing of the assembly (such as drill tubing) and the motor body in a direction opposite to that required to make-up the assembly, by applying a torque lower than the torque required to make up the assembly.

Provision of the releasable joint, which releases at a torque significantly lower than the make-up torque may ensure that the releasable joint is released, rather than any of the joints between the assembly tubulars, or between the assembly tubing and the motor body. In this regard, it will be appreciated by persons skilled in the art that a drilling motor is typically run on lengths of drill tubing which are coupled together through standard, tapered, pin and box type connections.

Preferably, the joint comprises a male pin on an end of the motor shaft and a female box in the drill bit which together make up the releasable joint. It will be understood that this joint is of the "pin-down" type. The threads on the male pin and the female box forming the releasable joint may be configured to release at a lower torque than the make up torque. The releasable joint is preferably a substantially cylindrical threaded joint. Alternatively, the releasable joint may further comprise a coupling member such as a crossover having a male pin received in a female box on an end of the motor shaft, which together make-up the releasable joint. The crossover may also include a standard, tapered threaded pin for engaging a corresponding threaded box formed in the drill bit, for coupling the drill bit to the crossover. This may advantageously allow drill bits of standard types including tapered threaded joints to be employed in the drilling assembly. In a still further alternative, the releasable joint may comprise a coupling member such as crossover assembly having first and second bodies, one of the first and second bodies having a pin and the other of the first and second bodies having a box which, together, define the releasable joint. Each of the first and second bodies may also have tapered threaded joints or the like such that one of the first and second bodies may be coupled to the motor shaft whilst the other of the first and second bodies may be coupled to the drill bit by the tapered threaded joint. Thus, it will be understood that the releasable joint is provided as part of the crossover. This is particularly advantageous in that provision of such a crossover allows motor drive shafts and drill bits to be used having standard type tapered threaded joints.

Preferably, the locking means comprises locking members adapted to engage at least a part of the motor, to lock the motor shaft relative to the body of the motor. The locking members may be placed in a string of the assembly tubing at surface and be

allowed to fall or be pumped down the string to the motor. The locking member may comprise locking balls. The motor may be shaped at an end thereof which is upstream in use or uppermost thereof, to define one or more spaces for receiving the locking members. It will be understood that when the locking members are received in the space, the motor shaft is locked. Alternatively, any other suitable locking means or method for locking the drive shaft relative to the body of the motor may be provided, such as flow rate string rotation pulling or setting weight down on the assembly, for example, to sheer locating pins for the shaft causing the shaft to be moved axially and locked.

According to a fourth aspect of the present invention, there is provided a method of selectively releasing a drill bit of a downhole drilling assembly from a remainder of the assembly, the method comprising the steps of:

providing the drilling assembly with a selectively releasable joint between a drilling motor of the assembly and the drill bit, and a locking means for locking a rotatable drill bit drive shaft of the drilling motor relative to a body of the motor;

activating the locking means to lock the motor shaft against rotation with respect to the motor body;

applying a rotational release force through tubing of the assembly and the motor body to release the releasable joint and separate the drilling motor from the drill bit; and

recovering the remainder of the drilling assembly to surface.

Advantageously, this may allow the remainder of the drilling assembly to be retrieved in the event of the drill bit becoming stuck during a downhole drilling operation.

The method may further comprise the step of providing the selectively releasable joint between the drive shaft of the drilling motor and the drill bit.

The step of activating the locking means may comprise the step of providing locking members and passing the locking members down through the assembly tubing and into a part of the motor, to cause the drive shaft of the motor to lock relative to the motor body. The locking members may be inserted into the assembly tubing at surface and dropped or pumped through the tubing to the motor.

The step of applying a rotational release force may comprise the step of applying a release torque to generate the release force, and the release torque may be less than the torque required to make-up the drilling assembly. The release torque may be in the range of 30-50% of the make-up torque, and in particular may be approximately 40% of the make-up torque.

Brief Description of the Drawing Figures

There follows a description of embodiments of the present invention, by way of example only, with reference to the accompanying drawings, in which:

Fig. 1A is a longitudinal, partial cross-sectional view of a downhole tool assembly, in the form of a downhole drilling assembly in accordance with a first embodiment of the present invention;

Fig. 1B is an enlarged view of a joint part forming a selectively releasable joint of the downhole drilling assembly of Fig. 1A;

Fig. 1C is a longitudinal, partial cross-sectional view of part of a typical threaded joint;

Fig. 2A is a longitudinal cross-sectional view of an upper part of a motor forming part of the downhole drilling assembly of Fig. 1A, drawn to a larger scale;

Fig. 2B is a further enlarged view of part of the motor of Fig. 2A, showing locking means of the drilling assembly in more detail;

Fig. 3A is a longitudinal, partial cross-sectional view of a downhole tool assembly, in the form of a downhole drilling assembly in accordance with a second embodiment of the present invention;

Fig 3B is an enlarged view of a joint part forming a selectively releasable joint of the downhole drilling assembly of Fig. 3A;

Fig. 4 is a view of part of a downhole drilling assembly in accordance with a third embodiment of the present invention, including a further alternative selectively releasable joint; and

Fig. 5 is a view of a selectively releasable joint, forming part of a downhole drilling assembly in accordance with a fourth embodiment of the present invention.

Detailed Description of the Preferred Embodiments

Referring initially to Fig. 1A, there is shown a longitudinal partial cross-sectional view of a downhole tool assembly, in the form of a downhole drilling assembly in accordance with a preferred embodiment of the present invention and indicated generally by reference numeral 10.

The downhole drilling assembly 10 shown includes a motor in the form of a turbine 12, coupled through drill tubing 14 to surface for driving a drill bit 16 to drill a wellbore 17. In general terms, the motor 12 defines a first body of the assembly in the form of motor body 36, and a second body of the assembly in the form of motor power output drive shaft 26, mounted for rotation relative to the motor body 36. A joint part in the form of a selectively releasable joint is formed between the drive shaft 26 and the drill bit 16, and locking means 34 are provided for locking the drive shaft 26 relative to the motor body 36, to prevent relative rotation therebetween, as will be described below.

In more detail, the motor 12 includes, from top to bottom, a tapered, pin-down, box-up connection 18 for coupling to a lower end of the drill tubing 14; a turbodrill power section comprising a turbine 20; a turbodrill bearing section 22 and a safety joint part in the form of a selectively releasable joint 24, for coupling the drill bit 16 to a power output drive shaft 26 of the turbine 20. It will be understood by persons skilled in the art that the drive shaft 26 extends from the turbine 20, through the turbodrill bearing section 22 to the drill bit 16, and that a drilling assembly in this form includes drill tubing 14 which is rotationally stationary during a drilling operation. Rotation of the drill bit 16 is effected by pumping drilling fluid, such as a drilling mud, through the tubing 14 to the motor 12 and through the turbine 20, to activate the turbine, rotating the drive shaft 26 and drill bit 16.

The selectively releasable joint 24 is shown in more detail in the enlarged view of Fig. 1B, and it will be seen that the joint 24 comprises a cylindrical threaded pin 28 formed on a lower end of the drive shaft 26, and a corresponding threaded box 30 formed in the drill bit 16 for receiving and engaging the pin 28 in a "pin-down" fashion, as shown. It will be understood that the threads on the pin 28 and box 30 are right-hand threads, such that the bit 16 is made-up to the drive shaft 26 by rotating the bit 16 relative to the shaft 26 in a clockwise direction, when viewing in the direction of the arrow A in Fig. 1A, up to a desired mating force, by applying a corresponding torque.

In the mechanics of screw threads, the effort required to raise a load is not the same as the effort required to lower a load. This also applies to a screwed joint in that the torque required to unscrew the joint is not the same as the torque applied to make-up the joint. In most typical joints, this difference is small and joints require approximately the same torque to unscrew or "break out".

Referring now to Fig. 1C, which is a longitudinal, partial cross-sectional view of part of a typical threaded joint 25, if the lead (the distance the screw would advance relative to, for example, a nut, in one rotation; for a single thread screw, lead is equal to pitch) of the thread is increased, the difference between the make up and break out torques increases. Therefore, a significantly lower break out torque can be achieved.

The selectively releasable joint 24 is configured such that the connection between the pin 28 and the box 30 by the threads thereon is released by applying a release force at a release torque less than the torque applied to make-up the bit 16 to the shaft 26.

This is achieved by configuring the threads on the pin 28 and box 30 of joint 24 such that:

$$1.0 < \frac{\text{joint Coefficient of friction}}{\tan(\text{helix angle})} > 3$$

where the tangent of the helix angle (α) is determined by:

$$\tan(\alpha) = \frac{\text{lead}}{2 \Pi r_a}$$

r_a being the mean radius. The helix angle and pitch (equal to lead for a single thread screw) is shown for the typical pin 25 in Fig. 1C. The joint coefficient of friction depends to a large extent upon the lubricant used in the joint between the threads of the pin 28 and box 30, the thread structure, and to a lesser extent, the pin 28/box 30 materials. The joint coefficient of

friction for the joint 24 may typically be in the range of 0.08 to 0.3. The break-out torque is dependent upon the value of the ratio of the joint coefficient of friction to the tan (helix angle), such that the difference between the make-up torque and the break-out torque is greatest when the ratio is close to 1, and smallest close to 3. However, typically the ratio will be around 2 for the joint 24, and the break out torques will likely be in the range of 30-50% of make up torque.

Thus, it will be understood that configuring the joint 24 in this fashion provides a safety joint where drill string connections between lengths of drill tubing 14 forming the string are of the normal type and break out at a torque approximately the same as the make up torque; the joint 24 is made with a special long lead thread according to the above relationship and is made up to the same torque as the other joints between the drill tubing 14 of the string. However, when a reverse torque of in the range of 30-50% of the make up torque is applied to the string, the string will "back out" (release) at the joint 24. In the preferred embodiment shown in the drawings, a square profile thread is employed.

Turning now to Fig. 2A, there is shown a longitudinal cross-sectional view of an upper part 32 of the turbine 20 of the motor 12, which includes the connection 18 for connecting the motor 12 to the drill tubing 14. Fig. 2A shows in particular locking means in the form of a locking assembly 34 provided at an upper end of the drive shaft 26 of the turbine 20. It will be understood that the turbine 20 is generally of a type known in the art, where the drive shaft 26 acts as a rotor whilst a body 36 of the turbine 20 acts as a stator. Rotor blades 38 are provided spaced axially along the length of the drive shaft 26 and stator blades 40 are provided spaced along the length of the body 36. Drill fluid passing through the drill tubing 14 into the turbine 20 in the direction of the arrow B (shown in Fig. 2A)

passes down between the rotor and stator blades 38, 40 to cause them to rotate relative to one another, thereby rotating the drive shaft 26 and drill bit 16.

Considering the locking assembly 34 in more detail, the assembly is shown in Fig. 2A where a number of locking members in the form of locking balls 42 have been inserted through the drill tubing 14 for locking the drive shaft 26 against rotation relative to the body 36 of the turbine 20. The locking balls 42 are shown in more detail in the enlarged view of Fig. 2B.

The locking assembly 34 further includes an asymmetrical space 44, formed between an outer surface of an upper end 46 of the drive shaft 26 and an inner surface of a lower end 48 of a sub 50, which defines a box connection 52 part of the coupling 18. The upper end 46 of the drive shaft 26 includes a number of flats (not shown), and when the locking balls 42 are located as shown in Fig. 2A, they lie in the space 44. By an interaction between the inner surface of lower end 48 of sub 50, the locking balls 42 and the flats on the shaft upper end 46, further rotation of the drive shaft 26 relative to the body 36 is prevented and the drive shaft 26 is therefore locked.

The operation of the drilling assembly 10 and the interaction between the various parts described above will become clear from the following description of the use of the assembly 10 in a well drilling operation.

The assembly 10 shown in Fig. 1A is made up at surface, and run to drill a wellbore 17, in a fashion apparent to the skilled person. During such drilling operations, the drill bit 16 occasionally becomes "stuck", such that further rotation and therefore deepening of the wellbore 17, is not possible. Furthermore, this jamming of the drill bit 16 causes the entire drilling assembly 10 to become stuck. When this situation occurs, the locking balls 42 are pumped down the drill tubing 14 from the surface, as described above, and are located in the

space 44, thereby locking the drive shaft 26 against further rotation within and with respect to the body 36 of the turbine 20. This allows the releasable joint 24 to be "backed off", by applying a release torque through the drill tubing 14 and the motor body 36. This is achieved by rotating the assembly 10 in an anti-clockwise direction, when viewing in the direction of the arrow A in Fig. 1A, transmitting a release force to the releasable joint 24. As the releasable joint 24 of the assembly 10 releases at a release torque which is lower than the torque required to make-up the assembly, the drill bit 16 is released by a separation of the pin 28 from the box 30, allowing the remainder of the drilling assembly 10 to be recovered to surface. It is this provision of a joint which releases at a lower release torque which ensures that the assembly is released at a desired location, that is, at a location between the drill bit 16 and the drive shaft 26. This is advantageous in that it both allows the drilling assembly to be retrieved without having to abandon it in the wellbore, and furthermore allows the drill bit 16 to be recovered in a "fishing" operation (known in the art), such that the wellbore does not need to be sidetracked around the stuck drill bit 16.

Turning now to Fig. 3A, there is shown a longitudinal, partial cross-sectional view of a downhole drilling assembly in accordance with an alternative embodiment of the present invention, indicated generally by reference numeral 100. The drilling assembly 100 is substantially the same as the assembly 10 of Fig. 1A, and like components share the same reference numerals incremented by 100. In-fact, the difference between the assemblies 10 and 100 is that the assembly 100 includes an alternative releasable joint 124. The joint 124 couples the drill bit 116 to the drive shaft 126 of turbine 120, and is shown in more detail in Fig. 3B, which is an enlarged view of the joint 124 of Fig. 3A. The joint 124 includes a crossover 54 and,

instead of providing the turbine shaft with a pin-down connection, as in the assembly 10, the crossover includes a cylindrical threaded pin 128 which engages a box 130 formed in a lower end of the drive shaft 126 and which together form the releasable joint. Furthermore, the crossover 54 includes a tapered threaded pin 56 which engages a box 58 of bit 116, to form a standard tapered threaded pin and box connection between the bit 116 and the crossover 54. The particular advantage of this arrangement is that this allows drill bits (such as the bit 116) of a standard type to be employed, with a standard box connection 58, through the provision of the crossover 54. Of course, when the joint 124 is released in a fashion similar to that described above (by releasing the pin 128 from the box 130), both the bit 116 and the crossover 54 would be left in the wellbore, until such time as a fishing operation may be conducted to retrieve the bit and crossover.

In Fig. 4, there is shown a part of a downhole drilling assembly in accordance with a further alternative embodiment of the present invention, including a further alternative selectively releasable joint, indicated generally by reference numeral 224. Like components with the assemblies 10 and 100 of Figs. 1A and 3A share the same reference numerals incremented by 200. It will be understood that only part of an assembly incorporating the joint 224 is shown for clarity, as the remaining parts carrying the joint 224 are similar to those of Figs. 1A and 3A.

The joint 224 includes a crossover 254 which includes a cylindrical threaded pin 228, coupled to a corresponding threaded box 230 in drill bit 216, to form the selectively releasable joint 224. The crossover 254 is coupled to a lower end of drive shaft 226 of a turbine (not shown) by a standard tapered threaded pin and box connection, which includes a pin 60 formed on the crossover 254 and a corresponding box 62 formed in the lower end

of the drive shaft 226. It will be understood that this is advantageous in that the arrangement allows drilling motors such as turbines to be provided which have standard type drive shafts 266, carrying standard box connections, with the releasable joint formed between the crossover 254 and the bit 216.

Fig. 5 shows a still further alternative selectively releasable joint, indicated generally by reference numeral 324. Like components of the joint 324 with the assemblies of Figs. 1A-4 share the same reference numerals incremented by 300. In a similar fashion to the joint 224 shown in Fig. 4, it will be understood that, for clarity, the remainder of a drilling assembly carrying the joint 324 is not shown.

The joint 324 comprises first and second bodies forming a crossover assembly and having a crossover 354 and a lower sub 64. The crossover 354 includes a tapered threaded pin 360 for connection to a drive shaft of a turbine (not shown), in a similar fashion to the crossover 254 of Fig. 4, and a cylindrical threaded pin 328 for engaging a corresponding threaded box 330 in the sub 64, to together define the releasable joint in the crossover assembly. The sub 64 also includes a tapered threaded pin 356 for engaging a corresponding box in a drill bit (not shown), in a similar fashion to the crossover 124 of Fig. 3A, which engages drill bit 116. The arrangement is particularly advantageous in that it both allows the use of standard turbine drive shafts and drill bits through standard tapered threaded pin and box connections. It will be understood that in the event of a drill bit coupled to a drive shaft through such a releasable joint 324 becoming struck, release of the drill bit is achieved by separating the pin 328 from the box 330 by applying a released torque in the fashion described above through the turbine drive shaft and the crossover 354.

It will be understood that references herein to a drilling motor and to a motor include any suitable device for generating a

rotational drive force in a downhole environment, and include but are not limited to turbines, PDM's, electric motors and the like.

Various modifications may be made to the foregoing within the scope of the present invention. In particular, the joints 24, 124, 224, 324 may include threads of a modified square (5-10°) profile; however, other thread profiles may be employed with perhaps, less efficient operational characteristics. The downhole tool, although of particular benefit in the disclosed uses, may be used in any suitable downhole tool assembly where it is desired to release a part of the assembly in the event of the assembly becoming stuck as described above, and thus the downhole tool is not limited to use in a drilling assembly. It will be understood that the term "joint coefficient of friction" used herein is a term known in the art, as used, for example, by the American Petroleum Institute.

THE CLAIMS

What is claimed is:

1. A downhole tool for use in a downhole tool assembly, the tool comprising:

a first body and a second body mounted for relative rotation;

a joint part for use in forming a selectively releasable joint between the second body and a part of the assembly couplable to the second body; and

locking means for locking the first and second bodies relative to one another against relative rotation, in use, so as to allow a release force to be applied through the first body to release the releasable joint and allow the tool to be separated from the part of the assembly.

2. A downhole tool assembly that includes a downhole tool comprising:

a first body and a second body mounted for relative rotation;

a joint part for use in forming a selectively releasable joint between the second body and a part of the assembly coupled to the second body; and

locking means for locking the first and second bodies relative to one another against relative rotation so as to allow a release force to be applied through the first body to release the releasable joint and allow the tool to be separated from the part of the assembly.

3. The downhole tool assembly as claimed in claim 2, wherein the selectively releasable joint is configured to release

at a release force which is less than the force applied to make up the joint for drilling operations.

4. The downhole tool assembly as claimed in claim 2, wherein the downhole tool assembly comprises a downhole drilling assembly and the downhole tool includes a drilling motor for driving a drill bit of the assembly.

5. A downhole drilling assembly comprising:

a downhole drilling motor having a motor body for coupling to tubing of the assembly and a rotatable drive shaft for coupling to a drill bit of the assembly;

a selectively releasable joint located between the drilling motor and the drill bit; and

locking means for locking the drive shaft relative to the body of the motor to allow a release force to be applied through the assembly tubing and the motor body to release the releasable joint and allow the drill bit to be separated from a remainder of the drilling assembly.

6. The downhole drilling assembly as claimed in claim 5, wherein the selectively releasable joint is configured to release at a release force which is less than the force applied to make up the joint for drilling operations.

7. The downhole drilling assembly as claimed in claim 6, wherein the release torque is lower than 70% of the torque required to make up the joint.

8. The downhole drilling assembly as claimed in claim 7, wherein the release torque is in the region of 30-50% of the torque required to make up the joint.

9. The downhole drilling assembly as claimed in claim 5, wherein the selectively releasable joint is located between the motor shaft and the drill bit, to allow separation of the drill bit from the remainder of the drilling assembly at a location between the drill bit and the motor shaft.

10. The downhole drilling assembly as claimed in claim 5, wherein the joint comprises a threaded male pin and a co-operating threaded female box.

11. The downhole drilling assembly as claimed in claim 10, wherein the threads on the pin and box of the joint are configured such that:

$$1.0 < \frac{\text{joint Coefficient of friction}}{\tan(\text{helix angle})} > 3$$

where the tangent of the helix angle (α) is determined by:

$$\tan(\alpha) = \frac{\text{lead}}{2 \Pi r_a}$$

where r_a is the thread mean radius.

12. The downhole drilling assembly as claimed in claim 10, wherein the male pin is provided on an end of the motor shaft and the female box in the drill bit.

13. The downhole drilling assembly as claimed in claim 10, wherein the releasable joint further comprises a coupling member, one of the coupling member and the motor shaft defining the male pin and the other one of the coupling member and the motor shaft defining the female box.

14. The downhole drilling assembly as claimed in claim 13, wherein the coupling member includes a male pin for engaging a corresponding female box formed in the drill bit, for coupling the drill bit to the coupling member.

15. A downhole drilling assembly as claimed in claim 10, wherein the releasable joint further comprises a coupling assembly having first and second bodies, one of the first and second bodies defining the pin and the other of the first and second bodies defining the box.

16. The downhole drilling assembly as claimed in claim 15, wherein each of the first and second bodies have standard tapered threaded joints for coupling one of the first and second bodies to the motor shaft, and the other of the first and second bodies to the drill bit.

17. The downhole drilling assembly as claimed in claim 12, wherein threads on the male pin and the female box forming the releasable joint are configured to release at a lower torque than the make up torque.

18. The downhole drilling assembly as claimed in claim 5, wherein the releasable joint is a substantially cylindrical threaded joint.

19. The downhole drilling assembly as claimed in claim 5, wherein the locking means comprises locking members adapted to engage at least a part of the motor, to lock the motor shaft relative to the body of the motor.

20. The downhole drilling assembly as claimed in claim 19, wherein the locking members are placed in a string of the assembly tubing at surface for transportation down the string to the motor.

21. The downhole drilling assembly as claimed in claim 19, wherein the locking members comprise locking balls.

22. The downhole drilling assembly as claimed in claim 19, wherein the motor is shaped at an end thereof which is upstream in use to define at least one space for receiving the locking members.

23. The downhole drilling assembly as claimed in claim 5, wherein the drilling motor comprises a fluid driven turbine.

24. The downhole drilling assembly as claimed in claim 5, wherein the drilling motor comprises a positive displacement motor.

25. A method of selectively releasing a drill bit of a downhole drilling assembly from a remainder of the assembly, the method comprising the steps of:

providing the drilling assembly with a selectively releasable joint between a drilling motor of the assembly and the drill bit, and a locking means for locking a rotatable drill bit drive shaft of the drilling motor relative to a body of the motor;

activating the locking means to lock the motor shaft against rotation with respect to the motor body;

applying a rotational release force through tubing of the assembly and the motor body to release the releasable joint and separate the drilling motor from the drill bit; and

recovering the remainder of the drilling assembly to surface.

26. The method as claimed in claim 25, wherein the method further comprises the step of providing the selectively releasable joint between the drive shaft of the drilling motor and the drill bit.

27. The method as claimed in claim 25, wherein the step of activating the locking means further comprises the step of passing locking members down through the assembly tubing and into a part of the motor, to cause the drive shaft of the motor to lock relative to the motor body.

28. The method as claimed in claim 27, wherein the locking members are inserted into the assembly tubing at surface and transported through the tubing to the motor.

29. The method as claimed in claim 25, wherein the step of applying a rotational release force further comprises the step of applying a release torque to generate the release force, and wherein the release torque is less than the torque required to make-up the drilling assembly.

30. The method as claimed in claim 29, wherein the applied release torque is in the range of 30-50% of the make-up torque.

DOWNHOLE TOOL

ABSTRACT

The invention relates to a downhole tool including a selectively releasable joint, a downhole drilling assembly including the downhole tool, and to a corresponding method. In one embodiment of the invention, a downhole drilling assembly includes a downhole tool having a first body and a second body mounted for relative rotation; a joint part for use in forming a selectively releasable joint between the second body and a part of the assembly coupled to the second body; and one or more locking member(s) for locking the first and second bodies relative to one another against relative rotation so as to allow a release force to be applied through the first body to release the releasable joint and allow the tool to be separated from the part of the assembly.

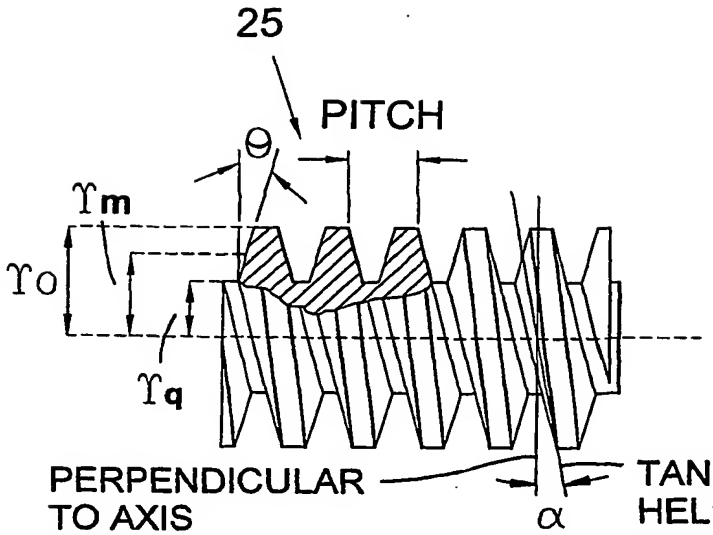


Fig. 1C

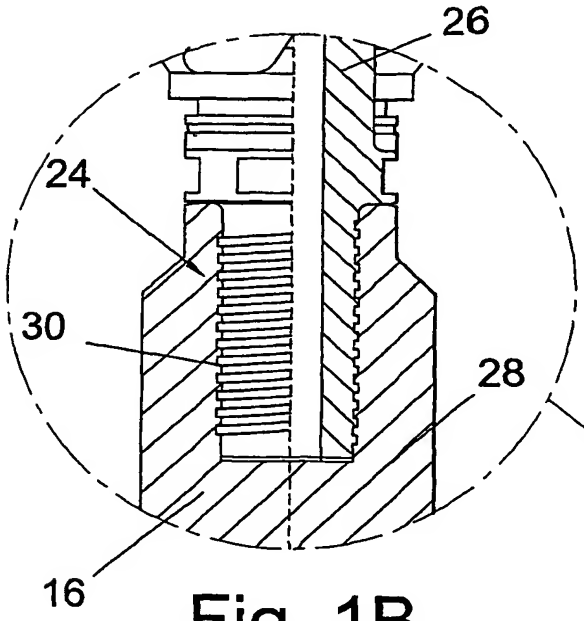


Fig. 1B

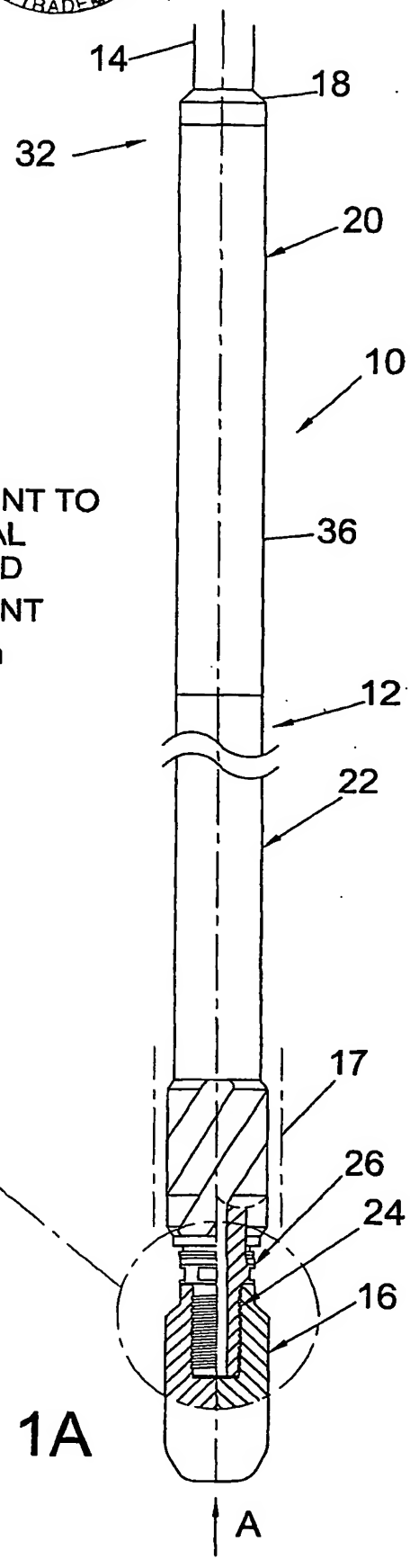


Fig. 1A

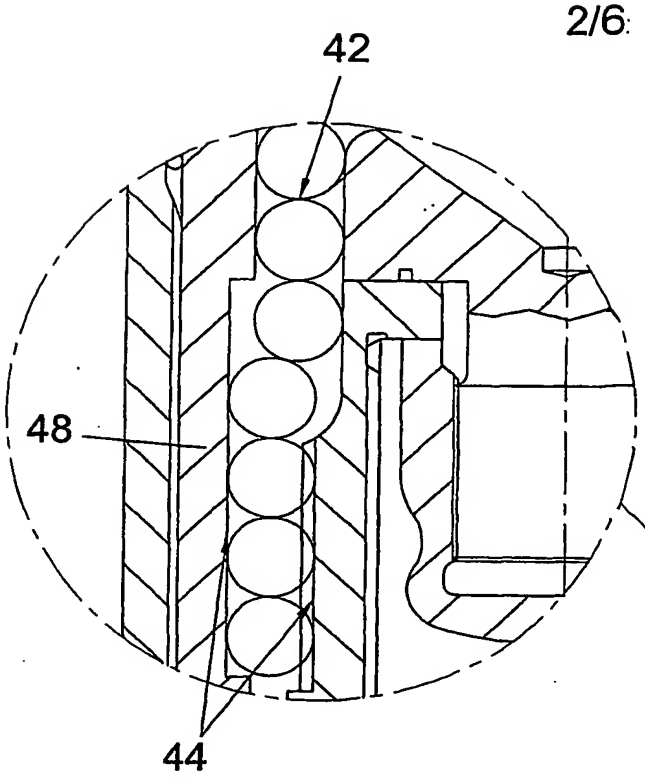


Fig. 2B

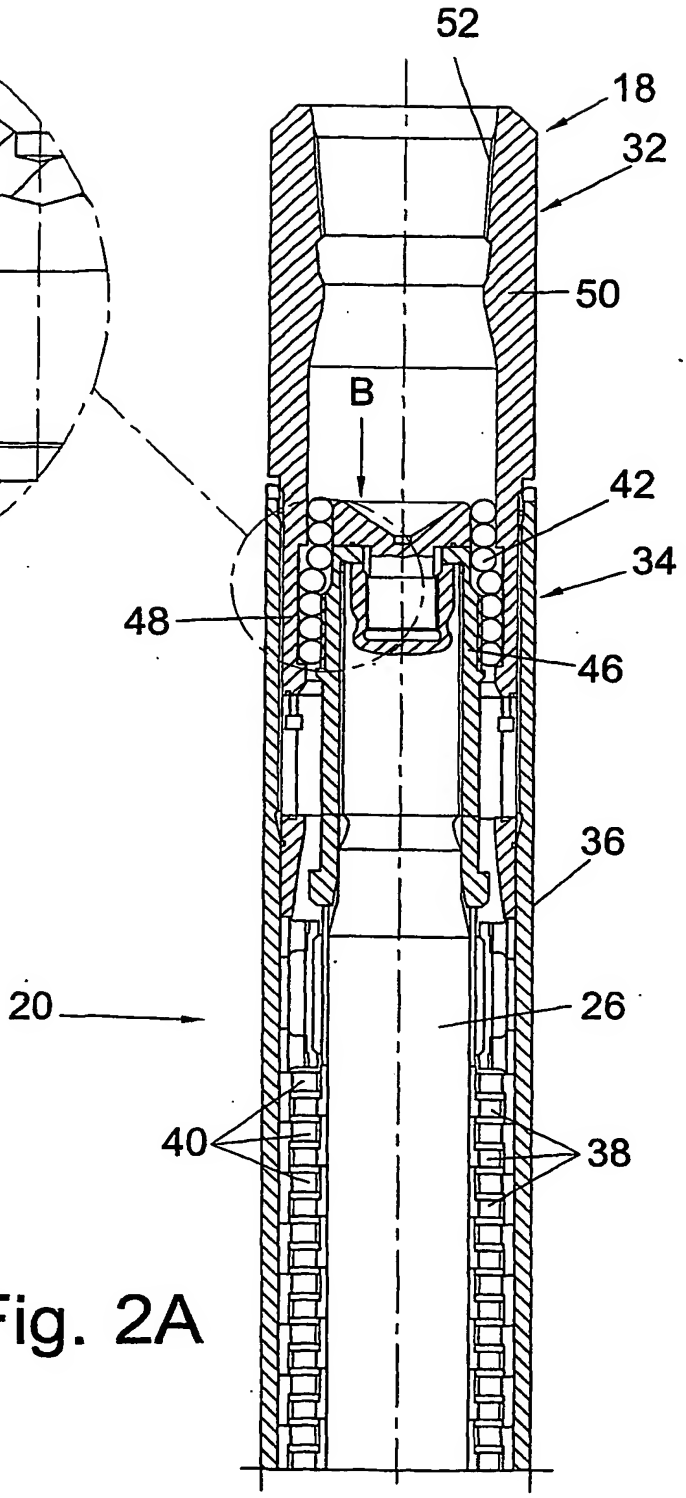


Fig. 2A

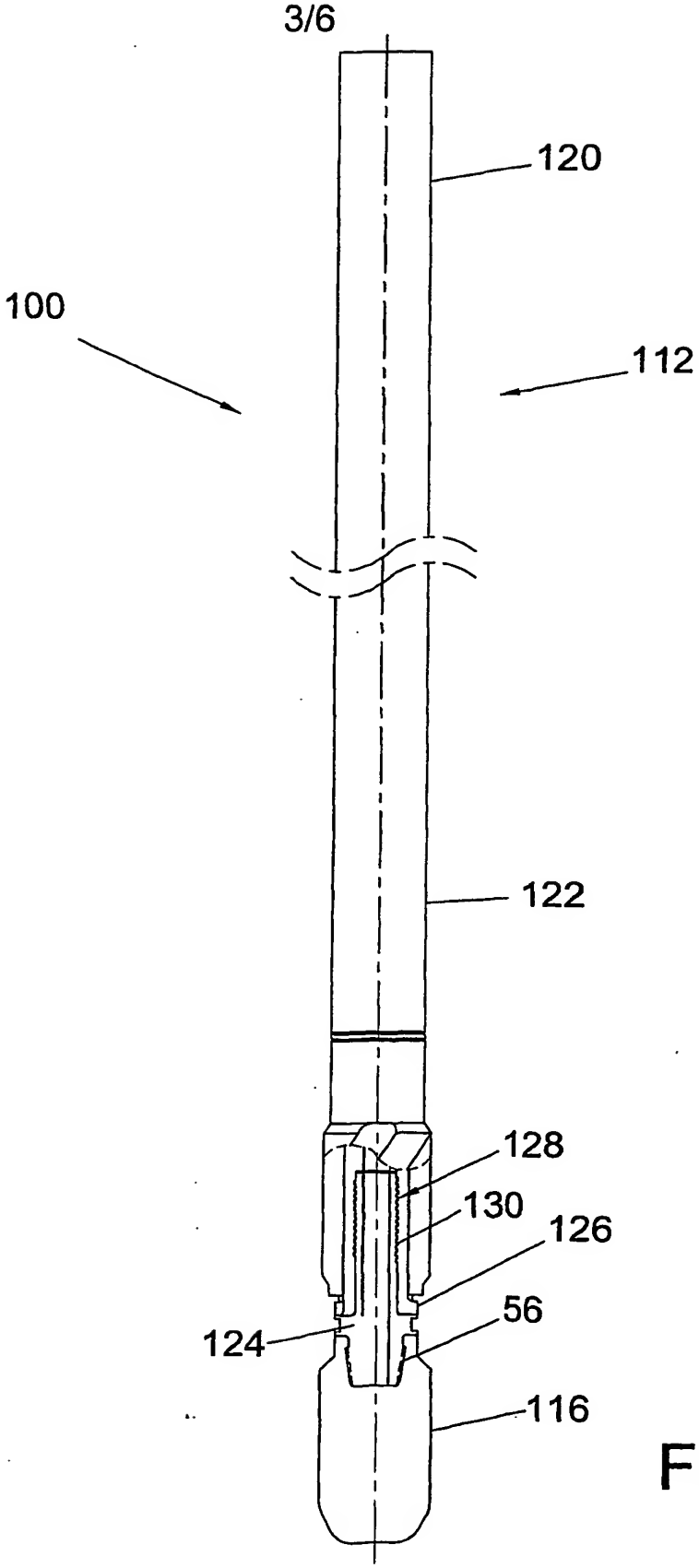


Fig. 3A

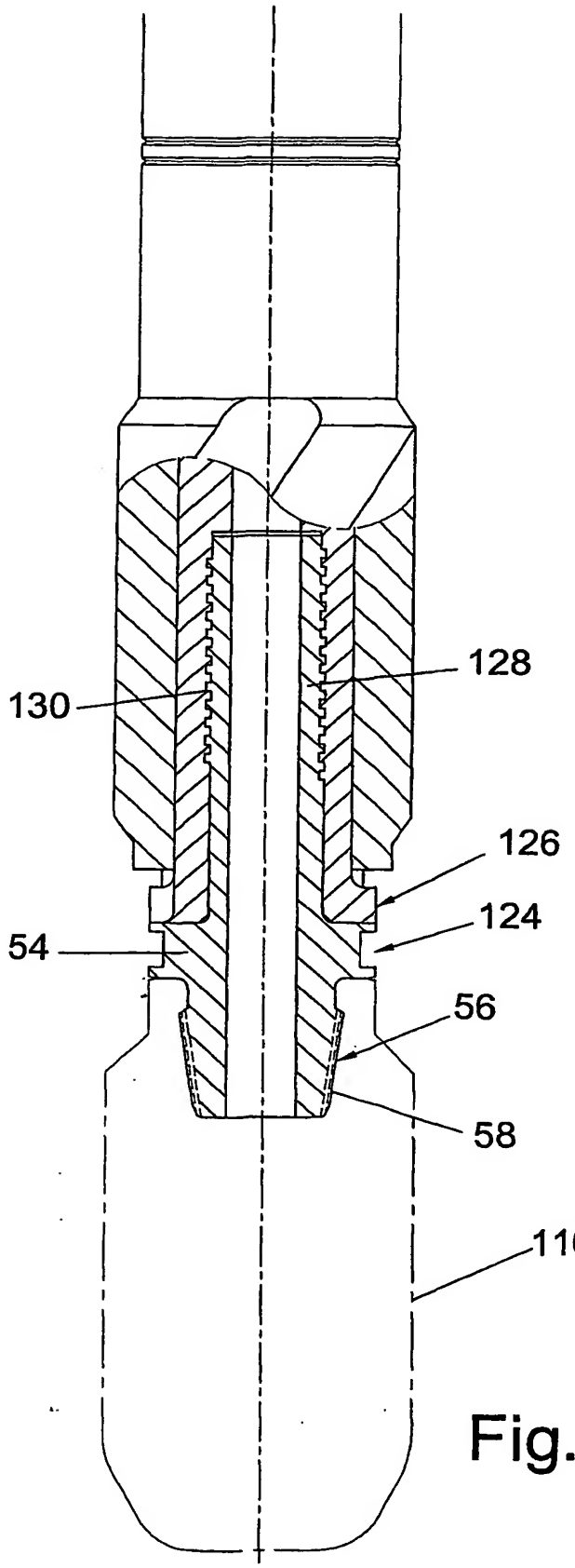


Fig. 3B

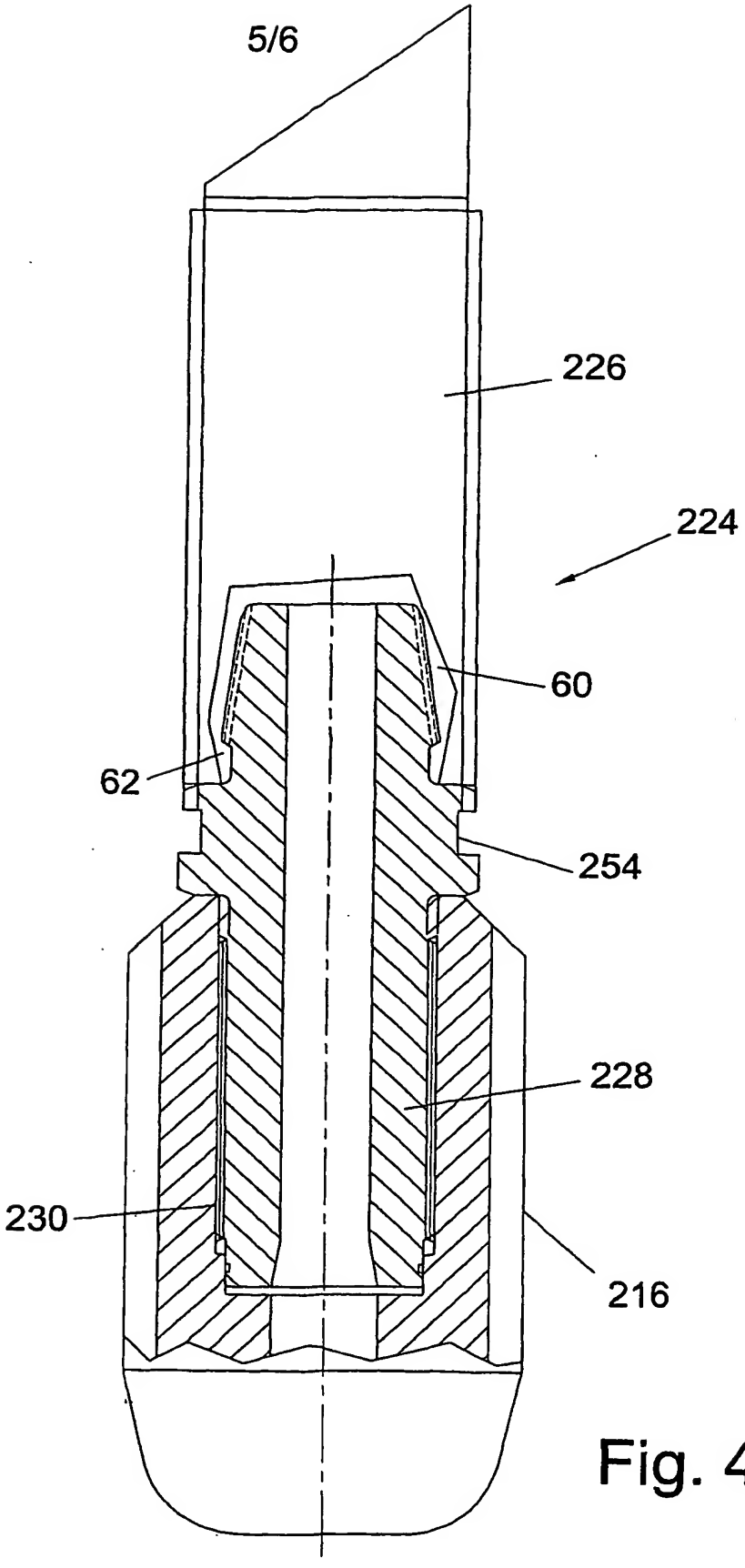


Fig. 4

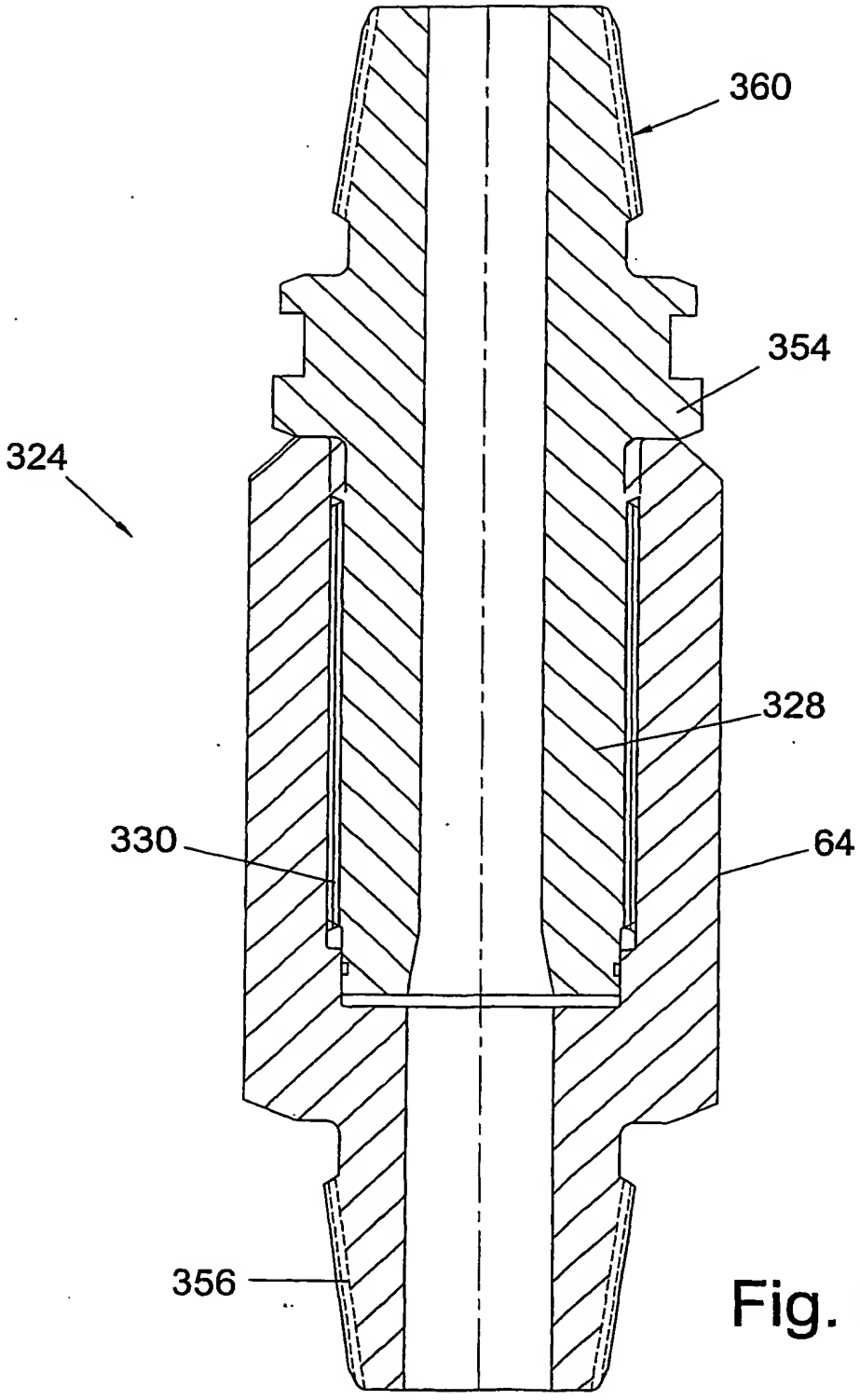


Fig. 5

WINSTON & STRAWN DOCKET NO. 85170-4599

DECLARATION FOR NON-PROVISIONAL PATENT APPLICATION

As a below named inventor, I hereby declare that:

My residence, post office address and citizenship are as stated below at 201 et seq. beneath my name.

I believe I am the original, first and sole inventor if only one name is listed at 201 below, or an original, first and joint inventor if plural names are listed at 201 et seq. below, of the subject matter which is claimed and for which a patent is sought on the invention entitled in:

DOWNHOLE TOOL

and for which a patent application:

☒ is attached hereto and includes amendment(s) filed on _____ *(if applicable)*

☐ was filed in the United States on as Application No. *(declaration not accompanying application)* with amendment(s) filed on _____ *(if applicable)*

☐ was filed as PCT international Application No. _____ on _____ and was amended under PCT Article 19 on _____ *(if applicable)*

I hereby state that I have reviewed and understand the contents of the above identified application, including the claims, as amended by any amendment referred to above.

I acknowledge the duty to disclose information known to me to be material to patentability as defined in Title 37, Code of Federal Regulations, § 1.56.

I hereby claim foreign priority benefits under Title 35, United States Code, § 119(a)-(d) of any foreign application(s) for patent or inventor's certificate listed below and have also identified below any foreign application for patent or inventor's certificate having a filing date before that of the application on which priority is claimed:

EARLIEST FOREIGN APPLICATION(S), IF ANY, FILED PRIOR TO THE FILING DATE OF THE APPLICATION				
APPLICATION NUMBER	COUNTRY	DATE OF FILING (day, month, year)	PRIORITY CLAIMED	
0101014.9	**Great Britain**	**January 15, 2001**	☒ YES	☐ NO
			☐ YES	☐ NO

I hereby claim the benefit under Title 35, United States Code, § 119(e) of any United States provisional application(s) listed below.

PROVISIONAL APPLICATION NUMBER	FILING DATE

I hereby claim the benefit under Title 35, United States Code, § 120 of any United States application(s) listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in the prior United States application in the manner provided by the first paragraph of Title 35, United States Code § 112, I acknowledge the duty to disclose information known to me which is material to patentability as defined in Title 37, Code of Federal Regulations, § 1.56 which became available between the filing date of the prior application and the national or PCT international filing date of this application:

NON-PROVISIONAL APPLICATION NO.	FILING DATE	STATUS		
		PATENTED	PENDING	ABANDONED
PCT/GB02/00178	**January 15, 2002**			**X**
10/619,402	**July 14, 2003**		**X**	

* for use only when the application is assigned to a company, partnership or other organization.

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issuing thereon.

201	FULL NAME OF INVENTOR	LAST NAME **DOWNIE**	FIRST NAME **Andrew**	MIDDLE NAME **McPherson**	
	RESIDENCE & CITIZENSHIP	CITY **Fife**	STATE OR FOREIGN COUNTRY **United Kingdom**	COUNTRY OF CITIZENSHIP **United Kingdom**	
	POST OFFICE ADDRESS	STREET **3 Kingseat Road, Dunfermline**	CITY **Fife**	STATE OR COUNTRY **United Kingdom**	ZIP CODE **KY12 0DE**
		SIGNATURE OF INVENTOR 201		DATE	
202	FULL NAME OF INVENTOR	LAST NAME **SCOTT**	FIRST NAME **Edward**	MIDDLE NAME **Docherty**	
	RESIDENCE & CITIZENSHIP	CITY **Fife**	STATE OR FOREIGN COUNTRY **United Kingdom**	COUNTRY OF CITIZENSHIP **United Kingdom**	
	POST OFFICE ADDRESS	STREET **Mayburn, 81 Station Road, Cardenden,**	CITY **Fife**	STATE OR COUNTRY **United Kingdom**	ZIP CODE **KY5 0BW**
		SIGNATURE OF INVENTOR 202		DATE	
203	FULL NAME OF INVENTOR	LAST NAME **POWELL**	FIRST NAME **Roy**	MIDDLE NAME	
	RESIDENCE & CITIZENSHIP	CITY **Estes Park**	STATE OR FOREIGN COUNTRY **Colorado**	COUNTRY OF CITIZENSHIP **United Kingdom**	
	POST OFFICE ADDRESS	STREET **269 Solomon Drive**	CITY **Estes Park**	STATE OR COUNTRY **Colorado**	ZIP CODE **85017**
		SIGNATURE OF INVENTOR 203		DATE	

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization
International Bureau

(43) International Publication Date
18 July 2002 (18.07.2002)

PCT

(10) International Publication Number
WO 02/055838 A1

(51) International Patent Classification[7]: E21B 17/06, 4/02

(21) International Application Number: PCT/GB02/00178

(22) International Filing Date: 15 January 2002 (15.01.2002)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
0101014.9 15 January 2001 (15.01.2001) GB

(71) Applicant *(for all designated States except US)*: **NEYR-FOR-WEIR LIMITED** [GB/GB]; Unit 2/1, 2/2, The E-Centre, Cooperage Way Business Village, Cooperage Way, Alloa FK10 3LP (GB).

(72) Inventors; and

(75) Inventors/Applicants *(for US only)*: **DOWNIE, Andrew, McPherson** [GB/GB]; 3 Kingseat Road, Dunfermline, Fife KY12 0DE (GB). **SCOTT, Edward, Docherty** [GB/GB]; Mayburn, 81 Station Road, Cardenden, Fife KY5 0BW (GB). **POWELL, Roy** [GB/US]; 269 Solomon Drive, Estes Park, CO 80517 (US).

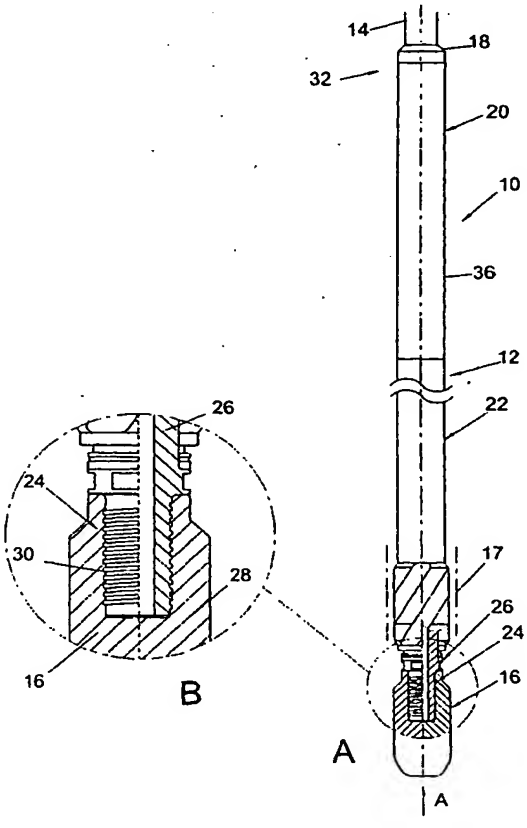
(74) Agents: **MCCALLUM, William, Potter** et al.; Cruikshank & Fairweather, 19 Royal Exchange Square, Glasgow G1 3AE (GB).

(81) Designated States *(national)*: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZM, ZW.

(84) Designated States *(regional)*: ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW),

[Continued on next page]

(54) Title: IMPROVED DOWNHOLE TOOL



(57) Abstract: The invention relates to a downhole tool including a selectively releasable joint, a downhole drilling assembly including the downhole tool, and to a corresponding method. In one embodiment of the invention, a downhole drilling assembly (10) includes a downhole tool (12) having a first body (20, 22) and a second body (26) mounted for relative rotation; a joint part (24) for use in forming a selectively releasable joint between the second body (26) and a part (16) of the assembly coupled to the second body (26); and locking means (34) for locking the first and second bodies (20, 22; 26) relative to one another against relative rotation so as to allow a release force to be applied through the first body (20, 22) to release the releasable joint (24) and allow the tool (12) to be separated from the part (16) of the assembly (10).

WO 02/055838 A1

Attorney Docket No. 85170-4599 PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of: Downie et al.
For: Improved Downhole Tool

the specification of which: (check and complete (a), (b), or (c))

(a) ☐ is attached hereto.

(b) ☒ was filed and amended on 7/14/03 as Application No. 10/619,402 and then continued as Continuation Application No. 10/798,201 filed on 3/10/04.

(c) ☒ was described and claimed in International Application No. PCT/GB02/00178, filed on 1/15/02.

STATEMENT OF FACTS IN SUPPORT OF FILING ON BEHALF OF NONSIGNING INVENTOR (37 C.F.R. § 1.47)

NOTE: This statement as to the pertinent facts concerning the refusal of the nonsigning inventor to join in the application or where the omitted inventor cannot be found or reached must accompany the declaration signed on behalf of the omitted inventor by a joint inventor or by a legal representative who shows a proprietary interest. Where the entity with a proprietary interest executes the declaration on behalf of the omitted inventor there must also be a showing that such action is necessary to preserve the rights of the parties or to prevent irreparable damage. 37 C.F.R. §§ 1.47(a) and (b).

This statement is made as to the exact facts that are relied upon to establish the diligent effort made to secure the execution of the declaration by the nonsigning inventor for the above-identified patent application before deposit thereof in the Patent and Trademark Office.

(check next item, if applicable)

☒ Because signing on behalf of the nonsigning inventor is by a person or entity showing a sufficient proprietary interest, this statement also recites facts as to why this action was necessary to preserve the rights of the parties or to prevent irreparable damage.

This statement is being made by an available person having first-hand knowledge of the facts recited therein.

NOTE: The statement "must be signed, where at all possible, by a person having first-hand knowledge of the facts recited therein." M.P.E.P. § 409.03(d), 8th ed. If different persons have first-hand knowledge of different facts, then a declaration from each such person as to those facts he or she knows should be submitted separately.

NOTE: Copies of documentary evidence, such as certified mail return receipt, cover letter of instructions, telegrams, etc., that support a finding that the nonsigning inventor could not be reached should be made part of the affidavit or declaration. It is important that the affidavit or declaration contain statements of fact as opposed to conclusions. M.P.E.P. § 409.03(d), 8th ed.

Sean C Henkel

Name SEAN C. HENKEL

Name

C/O SMITH INTERNATIONAL, INC., 16740 HARDY STREET, HOUSTON, TEXAS 77032, USA.

Address

Address

LAST KNOWN ADDRESS OF THE NONSIGNING INVENTOR

NOTE: The last known address of the nonsigning inventor must be stated so that the PTO can forward the notice of filing of the application to the nonsigning inventor at said address. 37 C.F.R. § 1.47.

EDWARD DOCHERTY SCOTT

Full name of nonsigning inventor

MAYBURN, 81 STATION ROAD, CARDENDEN, FIFE, KY5 0BW, UNITED KINGDOM

Last known address of nonsigning inventor

Note: Ordinarily, the last known address will be the last known residence of the nonsigning inventor, but other addresses at which the nonsigning inventor may be reached should also be given in the space below. M.P.E.P. § 409.03(e), 8th ed.

DETAILS OF REFUSAL OF NONSIGNING INVENTOR TO SIGN APPLICATION PAPERS

NOTE: Complete either these facts or the facts as to DETAILS OF EFFORTS TO REACH NONSIGNING INVENTOR.

NOTE: The circumstances of refusal must be specified by the person to whom the refusal was made and, before a refusal can be alleged, it must be demonstrated that a bona fide attempt was made to present a copy of the application papers (specification, including claims, drawings and declaration) to the nonsigning inventor for signature. A copy of the application papers should be sent to the last known address of the nonsigning inventor, or, if the nonsigning inventor is represented by counsel, to the address of the nonsigning inventor's attorney. The time and place of an oral refusal should be stated, or a copy of the written refusal should be attached.

If it is the conduct as a whole of the nonsigning inventor that is the refusal, then all the facts upon which this conclusion is based should be stated and a copy of any documentary evidence supporting these facts should be attached.

Where there is an express oral refusal, that fact along with the time and place of the refusal must be stated in the affidavit or declaration. When there is an express written refusal, a copy of the document evidencing that refusal must be made part of the affidavit of declaration.

Whenever the nonsigning inventor gives a reason for refusing to sign the application papers, that reason should be stated. M.P.E.P. § 409.03(d), 8th ed.

(use supplemental pages, if necessary)

International patent application No. PCT/GB02/00178 was filed on January 15th 2002 in the name of Neyrfor-Weir Limited, designating Andrew MacPherson Downie, Roy Powell and Edward Docherty Scott as the Applicants for the purposes of the United States of America only. The International application was based upon and claimed priority from UK patent application No. 0101014.9, filed January 15th 2001. The Applicant Edward Docherty Scott was an employee of Neyrfor-Weir Limited, employed as a Design Engineer, and all rights in any inventions developed by Mr. Scott were owned by Neyrfor-Weir Limited. Mr. Scott left the employment of Neyrfor-Weir Limited at the end of June 2001, prior to filing of the International application. However, on March 26th 2002, Mr. Scott completed a Power of Attorney in favour of Cruikshank & Fairweather (the European Patent Attorneys representing Neyrfor-Weir Limited) in respect of the International application.

The International application was assigned by Neyrfor-Weir Limited to Smith International, Inc in an Assignment dated 31st July 2002.

Following sale of the Neyrfor-Weir Limited business to Smith International, Inc, Neyrfor-Weir Limited changed name to Sii Neyrfor (a business unit of Smith International (North Sea) Limited, owned by Smith International, Inc).

The US national phase of PCT/GB02/00178 was entered on July 14th 2003 and subsequently afforded the serial number 10/619,402. This application was drafted by Cruikshank & Fairweather who, as noted above, were the European Patent Attorneys representing Neyrfor-Weir Limited, and who have subsequently represented Sii Neyrfor.

Around July 2003, my assistant, Inez Schifani, corresponded with Mr. Scott via email, advising that we would be contacting him asking him to complete a Declaration/Power of Attorney document in connection with US 10/619,402.

On August 2nd, 2003 Mr. Scott sent an email to Ms. Schifani requesting that we call him to discuss the issue of completion of the Declaration. A copy of this email is attached.

On August 15th 2003, Ms. Schifani attempted to contact Mr. Scott by telephone, but was unable to contact him. Ms Schifani then sent an email to Mr. Scott requesting that he contact me. A copy of this email is attached.

On August 18th 2003, Mr. Scott sent an email to Ms Schifani advising that he would contact me for discussion. A copy of this email is attached. Mr. Scott contacted me but verbally refused to sign the Declaration.

On October 10th, 2003, the USPTO issued a Notice to File Missing Parts in respect of the Oath/Declaration within an unextended period of two months from the date of the Notice.

On November 11th, 2003, Cruikshank & Fairweather corresponded with me advising me of a requirement to file the Declaration, and noting my previous comments to them that it was unlikely Mr. Scott would complete the document.

Also on November 11th, 2003, Cruikshank & Fairweather corresponded with Mr. Scott enclosing a copy of the Declaration and advising him of a requirement for him to complete the document. A copy of this correspondence is attached.

On November 12th 2003, Ms. Schifani, having not heard further from Mr. Scott since his August 18th email, contacted Mr. Scott to enquire as to whether I or Cruikshank & Fairweather had contacted him. A copy of this email is attached.

On November 13th 2003, Mr. Scott sent an email to Ms Schifani indicating that he had never been employed by Sii-Neyrfor or Smith International, Inc and indicated that he was unwilling to sign the document on this basis. A copy of this email is attached. However, Mr. Scott was employed by Neyrfor-Weir Limited and the Declaration requiring completion is in relation to an invention developed during his period as an employee of Neyrfor-Weir Limited. Furthermore, Mr. Scott apparently indicated that he would sign the Declaration on receipt of a payment. Mr. Scott also referred to the fact that the patent application listed Mr. Roy Powell as an inventor. Cruikshank & Fairweather were advised by Mr. Downie that the inventors were himself (Andrew MacPherson Downie), Roy Powell and Edward Docherty Scott prior to filing of the initial UK application 0101014.9, which occurred prior to Mr. Scott's departure from Neyrfor-Weir Limited. Mr. Downie was an employee of Neyrfor-Weir Limited and subsequently of Sii Neyrfor, and the point of contact for Cruikshank & Fairweather at the time of filing the UK and International applications. As noted above, the International application was based upon the UK application.

On January 28th, 2004, Cruikshank & Fairweather further corresponded with Mr. Scott enclosing a fresh copy of the Declaration and reminding him of a requirement for him to complete the document. A copy of this correspondence is attached.

On March 10th, 2004, Cruikshank & Fairweather arranged for a continuation application of US 10/619,402 to be filed. This was subsequently given the serial No. 10/798,201.

On May 26th, 2004, the USPTO issued a Notice to File Missing Parts in respect of the Oath/Declaration for US 10/798,201 within an unextended period of two months from the date of the Notice.

On June 29th 2004, Cruikshank & Fairweather corresponded with Mr. Scott advising him of filing of the continuation application 10/798,201, enclosing a copy of the application as filed comprising the specification, including claims, drawings and declaration, and further advising and explaining the requirement for him to complete a Declaration. This was copied to me and a copy of the correspondence is attached. Mr. Scott continues to refuse to complete the required Declaration.

PROOF OF NEED TO PREVENT IRREPARABLE DAMAGE OR PRESERVE THE RIGHTS OF THE PARTIES

NOTE: This proof must be presented where the declaration is signed by a person with sufficient proprietary interest for the nonsigning inventor (37 C.F.R. § 1.47(b)), but is not a requirement when the person signing for the nonsigning inventor is a joint inventor. (37 C.F.R. § 1.47(a))

If a statutory bar is involved, the act or publication which is believed to constitute the bar should be identified. If a claim for priority is involved, the prior application or applications should be identified.

A diligent effort to prepare the application and obtain the inventor's signature thereon must be made, even if the application is being filed to avoid a bar or to claim priority.

Irreparable damage may be established by showing that a filing date is necessary to (1) avoid a statutory bar or (2) make a claim for priority, which should identify the prior application(s) involved.

M.P.E.P. § 409.03(g), 8th ed.

(if this proof is not needed and not being presented, then draw a line through this page of the form)

(use supplemental pages, if necessary)

A filing date is necessary to preserve the rights of the party and to prevent irreparable damage.

A Notice to File Missing Parts under 35 U.S.C. § 371 was issued requiring filing of an oath or declaration of inventors in compliance with 37 C.F.R. § 1.497(a) and (b) which must be submitted within an extended period of five (5) months from the date of the date of the Notice to File Missing Parts. Smith International, Inc. and the other 2 inventors will suffer irreparable damage caused by eventual loss of priority date due to failure to file within the prescribed statutory time period.

This invention has been assigned to Neyrfor-Weir Limited, by all of the inventors except Mr. Scott. Thus, Smith International, Inc., the successors in title to Neyrfor-Weir Limited, by and through the undersigned agent, submits that Smith International, Inc, has sufficient proprietary interest in the subject matter to justify the filing of the application and, therefore, submits to file the declaration for the application as required by the Notice to File Missing Parts.

7/22/04
Date

Sean Hehl

signature of person making statement